

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE 01 Aug 02	3. REPORT TYPE AND DATES COVERED Technical Report, 2001	
4. TITLE AND SUBTITLE Accession Medical Standards Analysis and Research Activity Annual Report 2001		5. FUNDING NUMBERS	
6. AUTHOR(S) David W. Niebuhr, Yuanzhang Li, Timothy E. Powers, Margot R. Krauss			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Walter Reed Army Institute of Research Department of Epidemiology/Division of Preventive Medicine 503 Robert Grant Avenue Building 503, Room 2A34 Silver Spring, MD 20910-5000		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Unlimited		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) The Accession Medical Standards Analysis and Research Activity annual Report 2001 summarizes work done to support the development of evidence-based medical accession standards contained in DoD Instruction 6130.4 "Criteria and Procedure Requirements for Physical Standards for Appointment, Enlistment, or Induction in the Armed Forces." Studies in this report include: 1. Retention of Mild Asthmatics in the Navy, 2. Early Attrition Caused by Asthma in 2001 at FT Jackson, 3. Early Hospitalizations for Injury and Subsequent Attrition, 4. Case Series Review of Recruits Discharged for Inguinal Hernia, Hepatitis, Temporomandibular Disorders, Thyroid Disorders, Diabetes Mellitus, Abnormal Pap Smear, Enuresis, and Varicocele. Over 1,575,000 enlisted military applicants and 850,000 military accessions were analyzed. Applicants and accessions from 1995 to 1999 (aggregate) were compared to 2000 with attention to medical disqualifications, medical waivers, hospitalizations, existed prior to service medical discharges, and disability discharges. Future deliverable research efforts described include: mental health hospitalization and impact on attrition, detection of young adults with major psychiatric disorders, and the retention of mild asthmatics in the Navy.			
14. SUBJECT TERMS Medical accession standards, evidence-based, military recruits, disqualifications, waivers, hospitalization, existed prior to service, discharge, disability, injury, attrition, psychiatric disorders, asthma, medical entrance processing station (MEPS)		15. NUMBER OF PAGES 101	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unlimited	18. SECURITY CLASSIFICATION OF THIS PAGE Unlimited	19. SECURITY CLASSIFICATION OF ABSTRACT Unlimited	20. LIMITATION OF ABSTRACT Unlimited

20030904 044



AMSARA



Accession
Medical
Standards
Analysis &
Research
Activity



Annual Report 2001

Contents

<i>Executive Summary</i>	3
<i>Introduction</i>	5
1. DATA SOURCES	6
MEPS	6
DoDMERB	6
DMDC Gain/Loss	7
Waiver	7
Ambulatory Data System (Outpatient Medical Visits)	8
Hospitalization	9
EPTS Discharges	9
Disability	10
Navy Recruit Training Management and Standard Training Activity Support System	10
2. STUDIES	11
Retention of Mild Asthmatics in the Navy: First 9 Months of Project REMAIN	11
Early Attrition Caused by Asthma in 2001: Report of Interim Study at Fort Jackson	15
Early Hospitalizations for Injury and Subsequent Attrition among Enlisted Personnel: 1995-1999	18
3. DESCRIPTIVE STATISTICS FOR ENLISTED PERSONNEL IRRESPECTIVE OF ACCESSION RECORDS	24
Reserve and National Guard Applicants	24
Hospitalizations	30
EPTS Discharges	33
Disability	39
4. ACTIVE DUTY ENLISTED PERSONNEL WITH ACCESSION RECORDS: DESCRIPTIVE STATISTICS	41
MEPS/Gain	41
Waivers	45
Hospitalizations	51
EPTS Discharges	54
Disability Discharges for Army and Air Force	57
5. DoDMERB OFFICER PROGRAM APPLICANTS	59
Application by Program	60
Disqualification by Program	60
Summary	64

6. CASE SERIES REVIEWS FOR AMSWG 2001 QUARTERLY MEETINGS	65
Inguinal Hernia	67
Hepatitis	70
Temporomandibular Disorders	73
Thyroid Disorders	76
Diabetes Mellitus	79
Abnormal Pap Smear	82
Enuresis	85
Varicocele	89
 7. FUTURE DELIVERABLES	 92
Project REMAIN	92
EPTS Asthma Study at Fort Jackson	93
Mental Health Studies	93
Quadrennial Timetable for Draft of DoD Instruction 6130.4	94
 <i>Appendix: Accession Medical Standards</i>	 <i>95</i>
<i>Charter and Supporting Documents</i>	<i>96</i>
<i>Acronyms</i>	<i>101</i>

Executive Summary

The Accession Medical Standards Analysis and Research Activity (AMSARA) **has completed its fifth year of providing the DoD with evidence-based evaluations of accession standards.** Approximately 18% of applicants are initially disqualified for service due to present standards. About 5,000 enlisted applicants enter active duty with waivers for these conditions every year. However, there have been as many as 11,000 discharges in a year for pre-existing conditions not disclosed at MEPS. In all over 7,000 EPTS discharges occur every year during basic training, rarely among those who have been granted waivers for the same condition. **Requests for data analysis increased substantially in 2001, testament to AMSARA's focus and expertise in using epidemiological principles in analyses.**

For the first time AMSARA includes data this year on the total military force to include **Reserve and National Guard enlisted (1995–2000) and officer applications (1999–2000)**, approximately 44,000 and 18,000 per year, respectively. All accession records and medical discharge records for officers will be sought for the 2002 annual report.

In 2001 AMSARA has focused on **in-depth reviews of EPTS records** in coordination with the Accessions Medical Standards Working Group quarterly reviews for the revision of DoD Instruction 6130.4 scheduled for completion in 2004. For many conditions, **individuals either concealed their condition (e.g., enuresis) or had an undetectable condition (e.g., abnormal PAP smear)** at the MEPS physical examination.

EPTS records provided **evidence that many individuals refused medication or surgery** that might have enabled them to remain on active duty if treatment was successful. In 2002, AMSARA will pursue an initiative to obtain complete reporting of all EPTS discharges and supplemental documentation to help clarify whether further reduction in EPTS discharges can be made at the training installations.

Waivers for asthma have increased dramatically over the past 3 years (**up to ~1,000/year**), while **EPTS discharges have been decreasing.** Asthma therefore remains a focus of AMSARA research.

Project REMAIN, which completed its first year of enrollment in June 2001, examines the medical and operational impact of allowing known mild asthmatics to stay on active duty at Great Lakes Naval Training Center. **The significantly higher rate of discharge of mild asthmatics early in training appears to level off to rates comparable with controls after graduation.** Enrollment will be completed June 2002 with an additional year of follow-up anticipated.

AMSARA began another asthma study at Fort Jackson in 2001 to characterize recruit medical failures from asthma and to identify potential asthma screening criteria. Because the asthma discharge rate at Fort Jackson was lower than expected, Fort Knox was added

as a study site at the end of 2001. AMSARA anticipates adding Lackland Air Force Base in 2002.

Most asthma EPTS discharges continue to be among those who conceal their condition at MEPS. **AMSARA is field-testing a device to measure exhaled nitric oxide** at Great Lakes Naval Training Center to determine whether this measurement will be a useful adjunct to the current screening (i.e., history) at MEPS. Research funding is being sought to field-test this device at one high-volume MEPS.

Mental health conditions reduce medical readiness. In response to the need for further research and intervention, **AMSARA initiated a Small Business Initiative Research proposal (two Phase I grants were funded for this effort in 2001) to develop a prototype psychiatric condition screen suitable for use at MEPS.** Collaborative efforts to develop interventions to improve retention are ongoing with the Division of Neuropsychiatry at Walter Reed Army Institute of Research.

AMSARA uses scientific approaches to evaluate accession standards and retention programs. These efforts improve military readiness by maximizing both the accession and retention of motivated and highly capable recruits.

Introduction

The Accession Medical Standards Steering Committee was established in 1996 by the Undersecretary of Defense (Personnel and Readiness) to integrate the medical and personnel communities so they can provide policy guidance and establish standards for accession requirements. These standards will stem from evidence-based information provided by analysis and research.

The committee is co-chaired by the Deputy Assistant Secretary of Defense (Military Personnel Policy) and Deputy Assistant Secretary of Defense (Clinical and Program Review). Its members include representatives from the Office of the Assistant Secretary of Defense (Force Management Policy), Office of the Assistant Secretary of Defense (Health Affairs), Office of the Assistant Secretary of Defense (Reserve Affairs), Offices of the Service Surgeons General, Offices of Service Deputy Chiefs of Staff for Personnel, and Chief of Personnel and Training (Headquarters, U.S. Coast Guard).

The Accession Medical Standards Working Group, which is a subordinate working group of the Accession Medical Standards Steering Committee, reviews accession policy and is comprised of representatives from each office listed above.

AMSARA was also established in 1996 within the Division of Preventive Medicine at WRAIR to support the efforts of the Accession Medical Standards Working Group. AMSARA's mission is to support the development of evidence-based accession standards by guiding the improvement of medical and administrative databases, conducting epidemiologic analyses, and integrating relevant operational, clinical, and economic considerations into policy recommendations. AMSARA has the following six main objectives:

- Validate current and proposed standards (e.g., should asthma as a child be disqualifying?);
- Validate assessment techniques (e.g., improve current screening tools);
- Perform quality assurance (e.g., monitor geographic variation);
- Optimize assessment techniques (e.g., develop attrition prediction model);
- Track impact of policies, procedures, and waivers;
- Recommend changes to enhance readiness, protect health, and save money.

Military staffing to support AMSARA includes the Director, Division of Preventive Medicine, COL Patrick W. Kelley, and Chief, Department of Epidemiology, COL Margot R. Krauss, and the Chief, AMSARA, LTC David W. Niebuhr.

AMSARA is augmented with contract support through Allied Technology Group. Staff includes Project Manager, James Onaitis; Senior Biostatistician, Dr. Yuanzhang Li; Senior Analyst, Timothy Powers; Statistician, Lily Trofimovich; Data Manager, Janice Gary; Data Technician, Lorenzo Kennedy; Editor, Therese Grundl.

1. AMSARA DATA SOURCES

AMSARA requests and receives data from various sources, most of which are the primary collection agencies for the data they provide to AMSARA. Because data are seldom collected with the goal of epidemiologic study, AMSARA interacts with points of contact to ensure that data are in an appropriate form for epidemiologic work.

MEPS

AMSARA uses data on all applicants receiving a medical examination at any of the 65 MEPS. These data, provided by MEPCOM, contain approximately 235 demographic, medical, and administrative elements on recruit applicants for each applicable branch (regular enlisted, reserve, National Guard) of each service (Air Force, Army, Coast Guard, Marines, and Navy). These data also include a few officer recruit applicants and other nonapplicants receiving periodic physical examinations.

From the data provided by MEPCOM, AMSARA extracts 81 key personal, medical, and administrative variables, including personal identifiers (name, SSN) for linking with other data, demographics (gender, race, age), and extensive medical examination information (medical failure codes, waiver requirements, dates of examination, hearing-vision and alcohol-drug tests, height, weight, and blood pressure). Data also include a wide range of miscellaneous useful information (intended service, AFQT scores, education level at the time of application, and MEPS identification).

MEPS data are the primary source of demographic information on new accessions into the armed forces and of initial medical conditions and qualification status. These data are linked by AMSARA to DMDC gain files (see "DMDC Gain/Loss") to verify new accessions into the military and to provide benchmark descriptive statistics. These linked data are also used for analysis, such as selecting and matching subjects for case/control studies on back injuries, skin conditions, and other relevant topics.

Problems identified in the MEPS data include imprecise coding categories for medical disqualifications and missing and/or inaccurate data for some fields. Medical disqualifications are described only as broad categories, such as "chest and lungs" and "feet." More detailed coding is being implemented to more accurately specify reasons for disqualification, and this will allow more detailed studies of medical disqualifications.

DoDMERB

The DoD Medical Examination Review Board (DoDMERB) performs a role similar to that of the MEPS for officer programs. Specifically, DoDMERB schedules and reviews the results of physical examinations on applicants to officer programs. Applicants may be medically disqualified on the basis of these reviews, in which case a medical waiver would be required from the relevant program's waiver authority for the applicant to enter the program.

In 2001 DoDMERB provided data on officer program applicants who were medically examined for the academic years beginning in Fall 1999 and Fall 2000. This is the first annual report for which DoDMERB data are available (see Section 5).

DMDC Gain/Loss

DMDC provides data on individuals entering military service (gain or accessions) and on individuals exiting military service (loss). Gain/loss data are AMSARA's primary sources of information about who is, or has been, in the military. They include data on when an individual began duty (gain date) and when/if an individual exited the military (loss date). From this information the length of service can be determined for any individual entering and leaving during the times studied by AMSARA. This information is vital to the survival analysis studies presented in Section 2.

Gain data include approximately 50 variables. Of these, AMSARA has identified 25 of primary interest: personal identifiers (name, SSN) for linking with other data, demographics (gender, age, race) as a secondary source to MEPS, and service information (date of entry, training unit zip code). These data are combined with MEPS data to determine accession percentages by demographic and other variables.

Loss data also include approximately 50 variables, many of which are the same as those found in the gain file. Those of primary interest to AMSARA are personal identifiers for linking with other data, the loss date for computing length of service, and the interservice separation code as a secondary source of the reason for leaving the military.

A large problem in the gain data is lack of completeness, particularly for the Army from August 1997 to December 1997. AMSARA has found fewer than 800 records of new Army accessions for this period. This compares with an average of approximately 50,000 during the same months of 1995 and 1996. Analyses of accession percentages among individuals who applied for service before this time are therefore considered underestimates.

A problem with the loss data lies in the broad nature of the interservice separation code that characterizes the cause of the loss. Many categories have overlapping definitions, making it difficult to determine the real cause. For example, a discharge for pregnancy that existed before service might be coded "pregnancy," "condition existing prior to service," or "fraudulent enlistment." Such apparent inconsistencies have been encountered in comparing other sources of loss information (EPTS, disability discharge data) with the DMDC loss data.

Waiver

AMSARA tracks all recruit applicants who require a medical waiver for entry, i.e., those who were medically disqualified at the MEPS. Each service is responsible for making waiver decisions. Data on these waiver considerations are generated and provided to AMSARA by each service's waiver authority and contain identifiers (name and SSN), demographics (gender, age, race), and condition(s) for which the waiver was required. The Air Force and Army code the waiver conditions according to the full ICD9, whereas

the Navy and Marines code the waiver conditions according to DoD Instruction 6130.4 (see Appendix).

Many of AMSARA's studies begin with the waiver data. Individuals granted a waiver for a particular medically disqualifying condition are matched to the DMDC gain file to determine their date of entry, if any, into the service. These individuals constitute the pool from which main study subjects, and often their comparison subjects, are drawn for AMSARA's epidemiologic studies. Follow-up medical information during military service is appended to these records, including all hospitalizations, EPTS discharges, and disability actions. Details of the data provided by each service's waiver authority follow.

Army

The Army Recruiting Command (Fort Knox, Kentucky) has provided monthly electronic waiver data since January 1997. Each data record contains SSN, name, action (approved, disapproved, other), and date of waiver consideration. In addition, ICD9 codes are used to define the medically disqualifying condition(s) for which the waiver is being considered.

Air Force

The Air Force Directorate of Medical Services and Training transmits, upon request, data on all officer and enlisted waivers. These data include SSN, name, demographics, action (approved, disapproved, other), and date of waiver consideration. In addition, ICD9 codes are used to define the medically disqualifying condition(s) for which the waiver is being considered.

Navy

The Navy Bureau of Medicine and Surgery and Commander, Navy Recruiting Command, provide, on request, data about enlisted personnel and officers along with data from special programs such as ROTC and the Naval Academy. Data include SSN, name, demographics, action (approved, disapproved, other), and date of waiver consideration. In addition, diagnosis codes from DoD Instruction 6130.4 are used to define the medically disqualifying condition(s) for which the waiver is being considered.

ROTC/Academies

A summary of the type of data that has been collected from the ROTC programs and academies is contained in Section 2 of the 1998 AMSARA Annual Report. As initial medical examination and other data have recently become available from DoDMERB, further examination of these programs is expected.

Ambulatory Data System (Outpatient Medical Visits)

AMSARA continues to monitor data from the Standard Ambulatory Data Record Extract and is assessing the potential applicability to future studies. Among the considerations are the data capture rates at the various recording sites and the specificity of medical coding. AMSARA does, on occasion, make ad hoc requests for ambulatory visits data for use as an endpoint in various studies.

Hospitalization

PASBA provides hospitalization data on a yearly basis, and on occasion for ad hoc requests, for all services except the Coast Guard. These data contain information on admissions of active duty officers and enlisted personnel to any military hospital. Information on each visit includes SSN for linking with other data, demographic information (age, gender, race), and nature of the hospitalization (medical reason(s) for admission, date of admission, date of disposition, sick days, bed days, outcome).

EPTS Discharges

Discharges for EPTS medical conditions are of vital interest to AMSARA. MEPCOM requests a copy of official paperwork on all EPTS discharges and records certain information about the discharge. This information includes a rough medical categorization (20 categories) of the reason(s) for discharge and a judgment on each individual regarding why (concealment, waiver, unawareness) the person was not rejected for service on the basis of that preexisting condition.

Beginning in August 1996, this paperwork has been regularly forwarded by MEPCOM to AMSARA for additional data extraction, including more specific coding of medical conditions leading to discharge. For EPTS discharges before late 1996, AMSARA uses the data collected by MEPCOM. Therefore any analyses of EPTS discharges by medical reason will be less detailed for discharges before 1997.

With the more detailed recording, AMSARA can examine various combinations of medical endpoints in military survival analysis studies. For example, in a study to assess the influence of prior back problems on military retention, EPTS discharge patterns among recruits waived for back problems were compared with patterns among a sample not waived

The primary concern with these data is completeness. Table 1.1 summarizes the numbers of records provided to AMSARA over calendar years 1997–2000. It is clear that the numbers of records have been unstable over time for many of the basic training sites. For example, Lackland AFB provided only 105 records for CY 2000, whereas close to 1,000 records were provided in each of the 3 previous years. Similarly, drop-offs in data provision are apparent from Fort Jackson, Great Lakes, and Parris Island. Conversely, Fort Benning and Fort Sill have increased their records. AMSARA has contacted officials at sites with apparent data inconsistencies to emphasize the importance of these data to the process of assessing and improving the medical fitness of future recruits.

TABLE 1.1. EPTS DATA REPORTING TO U.S. MEPCOM, BY TRAINING SITE AND YEAR

Site	1997	1998	1999	2000	Total
Air Force					
Lackland AFB	1,000	1,070	994	105	2,169
Army					
Fort Jackson	1,913	1,767	712	354	2,833
Fort Leonard Wood	1,426	1,455	1,243	1,575	4,273
Fort Benning	387	535	890	1,212	2,637
Fort Sill	333	464	713	794	1,971
Fort Knox	666	653	506	599	1,758
Navy					
Great Lakes	3,542	5,343	2,664	1,913	9,920
Marines					
Parris Island	1,069	1,054	808	551	2,413
San Diego	743	492	526	656	1,674
Total	11,079	12,833	9,056	7,759	29,648

Disability

Data on disability discharge considerations are compiled separately for each service at its disability agency. Air Force and Army disability agencies provide data on all such discharge considerations. The Navy/Marines agency has provided data only on a diagnosis-specific request basis rather than for all actions, so AMSARA does not summarize these data.

Air Force and Army physical disability agencies provide information on all disability cases considered, including personal identifiers (name, SSN), program (regular enlisted, academy, officer), date of consideration, and disposition (permanent disability, temporary disability, return to duty as fit). For individuals receiving a disability discharge, medical condition codes and degree of disability are also included.

Condition codes used in the Air Force and Army are those of the Veterans Administration Schedule for Rating Disabilities. This set of codes is less comprehensive than the ICD9 codes. In some cases the disabling condition has no code, so the code most closely resembling the true condition is used. AMSARA therefore only uses broad categories of these codes rather than attempting to interpret specific codes.

Navy Recruit Training Management and Standard Training Activity Support System

The Navy's Recruit Training Management and Standard Training Activity Support System data collection system contains a large volume of information of interest to AMSARA. For each individual entering the Navy, this system contains much of the background information contained in the MEPS data. The system also maintains dates of arrival at basic training, transfer dates and locations, indicators of any medical visits while in training, and up-to-date information on duty locations of all Navy and Marine personnel. In addition to being a confirming source for MEPS and gain data on Navy personnel, this system allows daily tracking of individuals in training with the Navy, a vital component of Project REMAIN (see Section 2).

2. STUDIES

RETENTION OF MILD ASTHMATICS IN THE NAVY: FIRST 9 MONTHS OF PROJECT REMAIN

The negative impact of asthma for applicants and recruits in the military is well documented in the 1999 and 2000 AMSARA annual reports. Approximately 1,000 recruits were discharged each year with asthma within the first 6 months of service in 1995–2000.

The Secretary of the Navy determined that retention of mild asthmatics in the Navy might reduce attrition from asthma. Before changing the standard, however, the Secretary requested a systematic investigation of the effect of such a decision. Consequently on 26 July 2000 AMSARA began a study approved by the Institutional Review Board entitled Retention of Mild Asthmatics in the Navy (Project REMAIN) at Great Lakes Naval Training Center. Project REMAIN is the first systematic study of the effect of retaining recruits who do not meet strict accession standards.

Methods

This 3-year observational cohort study compares Navy recruits diagnosed with mild asthma with controls matched on age, race, gender, and date of entry on active duty on a 1:3 basis. All controls must be on active duty on the date of diagnosis of the case. Recruits at Great Lakes Naval Training Center with symptoms suggestive of asthma are referred to the asthma clinic through the usual health care system. All patients seen in the asthma clinic are evaluated by pulmonary function test, history, and physical examination. If FEV₁ is >80%, they also receive a methacholine challenge test.

Recruits diagnosed with moderate or severe asthma receive an EPTS discharge in accordance with DoD Directive 6130.3. Recruits determined to have mild asthma (intermittent or persistent) are considered part of the study group and receive a waiver for mild asthma at the end of basic training.

Recruits are identified as mild asthmatics if they meet all of the following criteria: 1) FEV₁ of ≥80%, 2) demonstrated evidence of hyper-responsive airways as evidenced by positive or inconclusive methacholine challenge test with a strong history consistent with asthma, and 3) presence of asthma symptoms during the day or night that do not occur daily (unless associated only with exercise). Mild asthmatics give informed consent to allow access to clinical data and complete a self-administered questionnaire.

No routine follow-up visits were scheduled. Medical care utilization and discharges of the entire cohort were studied.

Results

This interim analysis is based on the first 9 months of enrollment through 30 April 2001. During this time, 66 recruits were identified with mild asthma and matched to 196 controls. All recruits identified were followed on active duty for at least 6 months. Statistically more blacks and females were in the study group than in the entire Navy recruit population (Table 2.1).

TABLE 2.1. DEMOGRAPHICS OF PROJECT REMAIN PARTICIPANTS COMPARED WITH ALL NAVY RECRUITS FROM 26 JULY 2000 TO 10 APRIL 2001

	Cases (<i>n</i> = 66)		Controls (<i>n</i> = 196)		% Navy
	No.	%	No.	%	
Age					
17–19 yr	48	73	139	71	68
20–24 yr	14	21	52	27	25
>25 yr	4	6	5	2	8
Gender					
Male	48	73	143	73	82
Female	18	27	53	27	18
Race					
White	34	51	103	52	57
Black	19*	29	56	29	21
Hispanic	8	12	25	13	13
Other	5	8	12	6	9

* $p < 0.05$.

Retention on Active Duty

Individuals with mild asthma were followed on active duty up to 01 December 2001 for this initial analysis. These mild asthmatics were significantly more likely to leave active duty soon after diagnosis. As of December 2001, 32 cases (48%) and 164 controls (84%) remain on active duty (Fig. 2.1). After graduation from recruit training, no significant difference appears between cases and controls for retention.

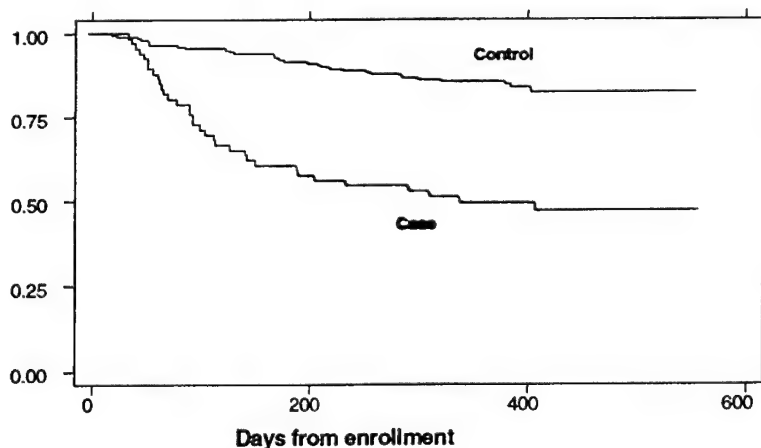


FIGURE 2.1. KAPLAN-MEIER SURVIVAL ESTIMATES BY STATUS. $p < 0.001$ by Wilcoxon rank.

Of the 34 discharged cases, 14 (41%) are known to have left active duty because of asthma. Other causes such as mental health, conduct disorders, and drug use account for the other 20 discharges.

Medical Care Utilization

Members of the cohort had 1,311 ambulatory visits recorded between enrollment in the study and 30 April 2001. The median number of visits was three for the entire cohort. Cases were 1.4 times more likely to have more than three visits during this study ($p < 0.02$). Cases had 81 visits for asthma compared with one visit among controls.

After excluding routine health visits (12% of visits by cases and 27% of visits by controls) and visits for asthma (18% of case visits) the median number of visits was two for the entire cohort. Cases remained at higher risk (RR 1.72) of having more than the median number of health visits during the study.

To date, seven participants required hospitalization during the study. Two cases accounted for three admissions, one of which was for asthma. Five controls were admitted during the study, none of which were for asthma.

Survey

Baseline historical data were collected regarding smoking, family history, known allergies, asthma symptom history, presence of inciting factors that worsen symptoms such as cold, heat, or exercise, and previous diagnosis or treatment for asthma.

Not surprisingly cases were more likely to smoke before recruit training and more likely to report a history of asthma (Table 2.2). Note that 2% (4) of the controls reported a history of asthma. No significant difference could be identified to discriminate between those cases who remained on active duty at the time of this analysis and those who left early. Cases were also more likely to report allergies and a family history. 25% of controls reported inciting factors.

TABLE 2.2. BASELINE HISTORICAL DATA FOR CASES AND CONTROLS

Question	Cases		Controls (n = 193)
	Active duty (n = 32)	Discharged (n = 34)	
Smoking before basic training	57 *	66 *	48*
Family history of asthma	19	20	11
Allergies	40	42	8
Any symptoms >2 times/wk	34	37	4
Inciting factors	83	97	25
Previous diagnosis of asthma	57	66	2

* Values are percent of respondents answering "yes."

Discussion

Mild asthmatics retained on active duty as part of this observational study appear not to be at increased risk of hospitalization. Mild asthmatics do experience a higher rate of early discharge when compared with matched controls, but this levels off after

completion of basic training. Cases also utilize medical services at a higher rate than matched controls. Even after removing routine visits and asthma-related visits, cases are more likely to experience a greater number of clinic visits.

Questionnaire data have limited value. No group of questions can identify who will be diagnosed with asthma or predict who will leave active service. Other studies have also found that survey data do not correlate well with clinical testing, nor does reporting of symptoms correlate with presence of mild asthma.

An additional year of enrollment will provide more cases to be followed, thus allowing for stronger analysis. In addition, this study will continue as these recruits with mild asthma arrive at the fleet. The impact on utilization of medical services, hospitalizations, and overall retention in the Navy will be assessed after a longer follow-up.

Initial results are encouraging: approximately 50% of recruits diagnosed with mild asthma are retained without placing these individuals at an unacceptable risk (they are at low risk of hospitalization). With asthma rising in the United States, allowing individuals with mild asthma to remain on active duty must be considered. However, identifying mild asthmatics among applicants who do not reveal their history or current problems with asthma remains a difficulty.

EARLY ATTRITION CAUSED BY ASTHMA IN 2001: REPORT OF AN INTERIM STUDY AT FORT JACKSON

AMSARA has reported that between 1995 and 1999 4.4% of all active duty enlistments with gain records ended in EPTS discharges. Of these discharges, 14.1% were due to asthma (2000 AMSARA Annual Report, p. 54). EPTS discharges result in significant losses to the DoD in readiness and money. Without intervention, the number of persons that receive EPTS discharges because of asthma is expected to increase as the prevalence of asthma increases in the United States. This study was designed to characterize recruits receiving EPTS discharges for asthma and to identify potential asthma screening criteria.

Methods

All recruits recommended for an EPTS discharge were asked to complete a self-administered questionnaire while outprocessing through the patient administration department at Fort Jackson, South Carolina, from 10 January 2001 to 17 December 2001. Questions covered preservice information about fitness, smoking, and symptoms suggestive of asthma. If the recruit was being discharged for asthma, an additional 13 questions were asked about symptoms and treatment for asthma. These questions allow a crude estimation of disease severity (mild, moderate, or severe) based on frequency of daytime and nighttime symptoms. Data were analyzed using STATA.

Results

Three hundred thirteen recruits completed questionnaires; this response rate of only 61.2% was likely caused by difficulties with the initial web-based format. The web-based approach was abandoned in early 2001 for a scannable form that is mailed to AMSARA monthly.

Twenty-six of these recruits (8%) were discharged for asthma, and 287 were discharged for other medical causes. Table 2.3 reports the results of demographic characteristics and medical history for both asthmatic and nonasthmatic discharged recruits who completed the questionnaire. Over 20% of both groups reported infrequent exercise before basic training (<1 time per week). Self-reported exercise frequency was not significantly different between the two groups. Approximately 88% of asthmatics reported that their condition was serious enough to require further care after discharge vs 73% for nonasthmatics. Only one of the 26 asthmatics thought they could have completed basic training. Of interest, 7.4% of those discharged for other reasons reported a history of asthma, which is the expected percentage in an unscreened population. Not surprisingly, those discharged for asthma were 7.8 (4.6, 13.2) times more likely to report history of asthma (58%).

Based on the reported frequency of these symptoms before basic training, over three-fourths of those disqualified for asthma would have been rated as moderate to severe asthmatics according to guidelines from the National Asthma Education and Prevention Program Expert Panel Report 2.

About 81% of the asthmatics reported that they used an inhaler before basic training; 57% used a steroid inhaler on a daily basis, and nearly 50% had used oral steroids. Nearly half had been seen in an emergency room for asthma before basic training, and one-third had been admitted for breathing problems or asthma.

During basic training, around two-thirds of the asthmatics had daytime symptoms daily or continuously, and only 6% had daytime symptoms of <1/week. Around two-thirds had nighttime symptoms weekly or more, and only 6% noted that their asthma symptoms did not interfere with physical activity. Over two-thirds would have been classified as moderate or severe asthmatics.

Overall the percentage of EPTS discharges caused by asthma is lower than expected (8.3% vs 14.1%, which has been quoted for all basic training sites), which may be explained by the variation in discharge condition rates among the training sites and the variation over time. Asthmatics may also be receiving discharges for other conditions or receiving non-EPTS discharges. In addition, reporting may be inaccurate.

A few discharges felt that they could complete basic training if given another chance; many thought their medical condition was serious enough to require further treatment after basic training; and an overwhelming majority felt that the reason given for EPTS discharge was the real reason for discharge.

Approximately 30% of the recruits were discharged while in the Reception Battalion, suggesting that most started training but failed. This conclusion is supported by the fact that most referred themselves to medical care.

As in previous descriptive studies of EPTS discharges, most reported that their discharge condition existed before service. The fact that asthmatics were more likely to conceal may be due to recruiters, who are aware of disqualification for this condition, coaching applicants to conceal their asthma.

Further analysis will be conducted after greater numbers of asthmatic EPTS discharges have been accumulated. More differences may be elucidated between asthmatic and nonasthmatic EPTS discharges as well as successful trainees, although successful trainees may not be included in this study because of training time constraints. These data will be used to validate EPTS discharges currently received from MEPCOM.

TABLE 2.3. CHARACTERISTICS OF ASTHMATIC AND NONASTHMATIC DISCHARGES

Characteristic of interest		Asthma discharges (age 20.4 yr, mean 17-27)		Nonasthma discharges (age 21.7 yr, mean 17-36)	
		No.	%	No.	%
Race	White	19	73.1	228	80.6
	Black	5	19.2	42	14.8
	Alaskan	0	0.0	1	0.4
	Asian/Pacific Islander	1	3.9	1	0.4
	Other	1	3.9	11	3.9
Ethnicity	Hispanic	1	7.4	23	12.4
	Non-Hispanic	13	92.9	163	87.6
Component	Active duty	19	79.2	189	68.2
	Reserve	3	12.5	38	13.7
	Guard	2	8.3	50	18.1
Smoking status	Nonsmoker	18	69	158	55
	Smoker	8	31	129	45
Exercise frequency	Never	4	15.4	27	7.5
	<1 time/wk	2	7.7	36	12.8
	1-2 times/wk	9	34.6	85	30.1
	3-5 times/wk	9	34.6	120	42.6
	>5 times/wk	2	7.7	20	7.1
Previous history of asthma	Yes	15	57.7	21	7.4
	No	11	42.3	262	92.6
Discharge condition exist before service	Yes	20	76.9	246	86.6
	No	6	23.1	38	13.4
Told MEPS about existing condition	Yes	2	9.5	68	27.5
	No	19	90.5	179	72.5
Told to conceal information	Yes	15	57.7	96	34.3
	No	11	42.3	184	65.7
Discharged in reception battalion	Yes	8	32.0	74	26.2
	No	17	68.0	209	73.9
Discharge diagnosis real reason for discharge	Yes	25	100.0	280	99.6
	No	0	0.0	1	0.4
Reason for first visit	Self-referred	12	52.2	157	58.4
	Ordered	6	26.1	79	29.4
	Other	5	21.7	33	12.3
Number of medical visits	1-2	13	61.9	167	67.9
	3-5	5	23.8	61	24.8
	>5	3	14.3	18	7.3
Care required after discharge	Yes	22	88.0	200	73.0
	No	3	12.0	74	27.0
Can complete basic training	Yes	1	3.9	35	12.7
	No	25	96.2	241	87.3
Rate training (1-horrible, 10-terrific)	1-5	10	43.5	109	40.8
	6-10	13	56.5	158	59.2

EARLY HOSPITALIZATION FOR INJURY AND SUBSEQUENT ATTRITION AMONG ENLISTED PERSONNEL: 1995–1999

Introduction

Although common during initial training, most injuries do not require hospitalization. Unfortunately, however, injuries represent 8% of all hospitalizations during the first year of duty among active duty enlistees, second only to mental health conditions. Hospitalizations during the first year of service may indicate failures in the medical screening process or correctable practices during early training.

This study examined patterns and associations of hospitalizations for injuries during the first year of service and the likelihood of attrition after such hospitalization

Subjects and Methods

The study population is first-time enlistees in the Air Force, Army, Marines, and Navy who started active duty from January 1995 to December 1999.

All individuals were followed prospectively for any hospitalizations and losses for at least 12 months of military service. Diagnostic categories were grouped by combining the primary ICD9 diagnostic code assigned to each hospitalization record. Injury hospitalizations were defined by discharge diagnosis ICD9 codes 800–859.99, 900–959.99, B900, and V540.

Information on the enlistee population was obtained from DMDC and MEPCOM. Hospitalization data were obtained from the Patient Administration Systems and Biostatistics Activity (San Antonio, TX), and data on losses came from DMDC. (See Section 1, “Data Sources,” for details.)

Cox proportional hazards model was used to derive adjusted attrition estimates [1]. All analyses were performed using SAS statistical software [2].

Trends in All-Cause Hospitalization Rates Over 5 Years

All-cause hospitalization rates in the first year of service steadily decreased from 1995 through 1999, with a marked decline from 1996 to 1997 (Table 2.4). This reduction in rates coincides with transition to the TRICARE health system in the military and the national trend to more outpatient care. Only hospitalization for mental health conditions has not shown this consistent downward trend.

TABLE 2.4. ALL-CAUSE HOSPITALIZATION RATES BY TIME ON ACTIVE DUTY, CAUSE, AND YEAR OF BEGINNING ACTIVE DUTY

Causes	ICD9 codes	Rate/1,000				
		1995	1996	1997	1998	1999
<6 mo on active duty	295–302.99;					
Mental health	306–316.99	8.9	9.3	8.3	7.7	8.9
Respiratory infections	460–478.99	5.3	4.0	1.5	0.8	1.4
Injuries	800–859; 900–959	2.9	2.5	1.5	1.5	1.3
Alcohol/drug abuse	303–305.99	0.9	0.7	0.5	0.3	0.2
Poisoning and toxic	960–989.99	0.6	0.5	0.4	0.4	0.3
Complications of pregnancy, childbirth, puerperium	630–677	0.3	0.2	0.2	0.1	0.1
Others	All not listed above	28.1	22.4	11.6	10.5	10.2
All causes		46.9	39.7	23.9	21.2	22.4
6–12 mo on active duty	295–302.99;					
Mental health	306–316.99	5.6	5.6	5.9	5.2	6.0
Injuries	800–859; 900–959	3.6	3.0	2.2	2.1	2.1
Alcohol/drug abuse	303–305.99	2.8	2.0	1.3	1.0	0.7
Complications of pregnancy, childbirth, puerperium	630–677	2.4	1.9	1.7	1.3	1.4
Respiratory infections	460–478.99	1.6	1.1	0.7	0.7	0.6
Poisoning and toxic	960–989.99	0.5	0.5	0.5	0.3	0.4
Others	All not listed above	21.4	14.0	8.5	7.7	7.0
All causes		37.7	28.1	20.7	18.3	18.1

Injury Hospitalization Rates

Injury hospitalization rates are higher after the first 6 months of service. However, during the first 6 months females experience a slightly higher rate of hospitalization, which then declines in subsequent periods examined (Table 2.5). This decline may reflect differences in the physical demands of the careers taken by males and females after the common experience of basic training. Rates did not vary significantly by age or race.

TABLE 2.5. INJURY HOSPITALIZATION RATES BY YEARS ON ACTIVE DUTY

Factor	Number of hospitalized individuals/1,000			
	0.5 yr on AD	0.5–1 yr on AD	1–1.5 yr on AD	1.5–2 yr on AD
Gender				
	Female	2.4	1.8	1.7
	Male	2.2	3.5	3.4
Age				
	17–20 yr	2.0	3.1	3.1
	>20 yr	2.7	3.4	3.1
Race				
	White	2.3	3.3	3.2
	Black	1.9	3.0	2.8
	Others	2.2	2.7	3.0
Total	2.2	3.2	3.1	2.8

Injury Type and Anatomic Location

Fractures account for over half of the early hospitalizations for injuries (Table 2.6). Most superficial injuries were for the lower extremity and foot, with over one-third discharged with an associated diagnosis of cellulitis or other wound infection. The “other” category consists of nerve injuries, contusions, heat stroke, foreign bodies, vascular injuries, and removal of retained hardware.

TABLE 2.6. DISTRIBUTION OF INJURY HOSPITALIZATIONS WITHIN FIRST 6 MONTHS OF SERVICE BY TYPE AND ICD9 CODE, 1995–1999

Type (ICD9)	Count	%
Fracture (800–829)	875	52.4
Sprain/strain (840–849)	149	8.9
Intracranial (850–854)	144	8.6
Superficial (910–919)	132	7.9
Dislocation (830–839)	107	6.4
Other	263	15.8
Total	1,670	100.0

Injuries of lower extremities accounted for 38% of injury hospitalizations (Table 2.7), with most of these being fractures.

TABLE 2.7. DISTRIBUTION OF INJURY HOSPITALIZATIONS WITHIN FIRST 6 MONTHS OF SERVICE BY ANATOMIC LOCATION

Location	Count	%
Lower extremity	635	38.0
Head	351	21.0
Upper extremity	345	20.7
Neck and back	100	6.0
Torso	69	4.1
Other	170	10.2
Total	1,670	100.0

Fractures continue to account for most hospitalizations for active duty members through the first term of service (Figure 2.2). Rates for the various types of injury hospitalizations remain fairly stable over the first 3 years of active duty. By comparison, hospitalization rates for respiratory infections drop considerably after the first 6 months of duty. This latter pattern reflects overall hospitalization rates for the first term of duty.

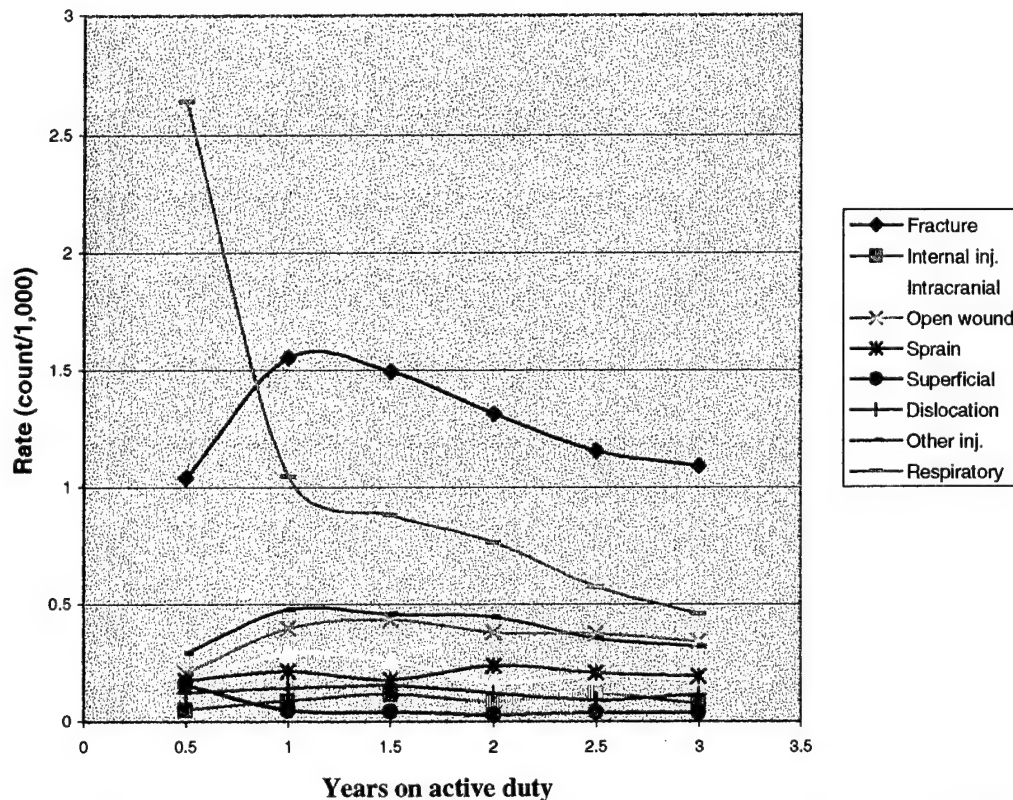


FIGURE 2.2. RATES OF HOSPITALIZED INDIVIDUALS BY YEARS ON ACTIVE DUTY (COUNT/1,000).

Attrition after Injury Hospitalization

Attrition rates after hospitalization for specific types of injuries are compared with attrition after hospitalization for respiratory and mental health conditions because they have been described as having low and high attrition, respectively. Among injury subcategories, hospitalization for sprains was most likely to result in attrition with nearly half of these individuals being lost within a year after hospitalization (Table 2.8). The lowest attrition rate after injury hospitalization was related to superficial injuries. The 6-month loss rate (14%) was noted to be lower than early attrition after a respiratory infection hospitalization (17%), a condition that would not be expected to affect retention. These rates became nearly identical at 1 year.

TABLE 2.8. ATTRITION RATE 6 AND 12 MONTHS AFTER HOSPITALIZATION DURING FIRST 6 MONTHS OF SERVICE: INJURY VS NONINJURY

Hospitalization cause	Attrition rate /100 recruits 6 mo and 1 yr after first hospitalization	
	Lost by 6 mo	Lost by 1 yr
Injury hospitalizations		
Dislocation	29.2	42.7
Fracture	20.3	35.2
Internal injury	20.0	30.0
Intracranial	21.8	31.6
Open wound	32.7	38.3
Sprain and strain	32.8	45.3
Superficial injury	13.8	22.0
Other injuries	29.7	46.7
Noninjury hospitalizations		
Poisoning and toxic	65.8	69.5
Mental health	88.5	90.6
Respiratory infections	17.2	23.3
Others	25.0	31.1

A proportional hazards model was used to study service time and attrition patterns after initial hospitalization while controlling for gender, age, race, body mass index, education, and AFQT performance. For comparison, retention predictions are also shown after hospitalization for respiratory illness (no increased risk of attrition) and for psychological conditions (associated with high subsequent attrition). Survival curves were estimated based on hazard ratios for each condition relative to respiratory illness.

Predicted retention curves for enlistees in all services combined are remarkably close to those after hospitalization for a respiratory infection (Fig. 2.3). In contrast, the predicted retention probabilities after hospitalization for psychological conditions are low, with survival probability of <40% just 1 month after hospitalization. These findings did not vary by service.

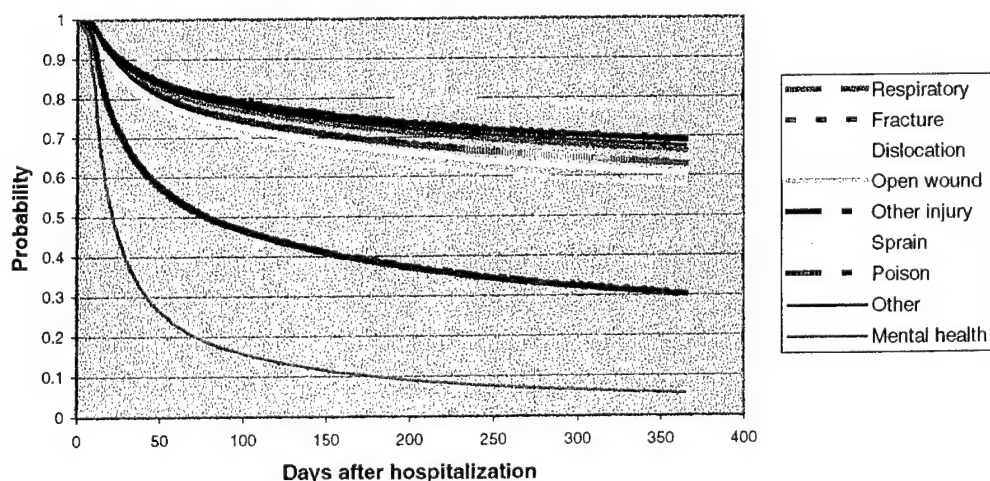


FIGURE 2.3. SURVIVAL PROBABILITY AFTER HOSPITALIZATION DURING FIRST 6 MONTHS OF SERVICE.

Conclusions

All-cause individual hospitalization rates within the first 6 months of service showed a decline from 46.9 per 1,000 in 1995 to 22.4 per 1,000 in 1999. The injury category accounts for a relatively large share of hospitalizations (8%) within the first year of service. Injury hospitalizations within 6 months of service are more common in females. Unlike males, hospitalizations for females decline after 6 months. Lower extremities are the most frequently injured, as has been noted in numerous outpatient studies of injuries during basic training [3]. Some hospitalizations for superficial wounds of the foot were also associated with cellulitis and therefore may be preventable with improved foot care when trainees form blisters or experience other trauma to their feet during training.

Predicted retention likelihood curves that adjusted for several covariates confirmed that attrition after injury hospitalization is fairly low relative to that after hospitalization for other causes.

As with any study using an existing data source, this study is limited by the accuracy of the data sources. Accuracy and completeness of ICD9 coding of hospitalization causes and any missing records are assumed to be dispersed proportionately across comparison groups. It is not possible to know which, if any, losses were directly related to the condition for which a subject was admitted to the hospital.

Future studies are needed, particularly in mental health and injury, because of the relatively high rates of hospitalization observed for these conditions. Focused areas of research should include methods to improve interventions to prevent their occurrence.

References

1. Lawless JF. *Statistical Models and Methods for Lifetime Data*. New York: John Wiley & Sons, 1982.
2. *SAS/STAT User's Guide*, version 8. Cary NC: SAS Institute, 1999.
3. Hauret KG, Shippey DL, Knapik JJ. The Physical Training and Rehabilitation Program: duration of rehabilitation and final outcome of injuries in basic combat training. *Mil Med* 2001;166:820.

3. DESCRIPTIVE STATISTICS FOR ENLISTED PERSONNEL IRRESPECTIVE OF ACCESSION RECORDS

Reserve and National Guard Applicants

Reserve and National Guard applicants who received a medical examination at a MEPS in CYs 1995–1999 (aggregate) and 2000 are summarized. Individuals examined come primarily from the civilian population, whereas many new accessions into the reserves and guard are direct accessions from the active duty population. Therefore these results do not necessarily reflect all accessions into these programs.

Chi-square analyses were performed to compare distributions by demographic variables for 1995–1999 vs 2000. All chi-square statistics indicated highly statistically significant associations, although this is often more related to the large population numbers in the comparisons than to any meaningful differences in the distributions.

Tables 3.1–3.6 describe applicants to the enlisted reserve program. Table 3.1 shows the number of applicants to the reserves who received a medical exam at MEPS. Navy applicants steadily and significantly decreased from 1995 to 2000. Although AMSARA does not have access to alternative sources of information on reserve applications in the Navy, this trend appears to be more likely due to data difficulties than to actual trends in applications.

TABLE 3.1. RESERVE APPLICANTS AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: SERVICE

	Army	Navy	Marines	Air Force
1995	23,032	12,290	7,553	1,666
1996	25,214	8,786	8,413	2,014
1997	20,861	6,417	7,569	2,041
1998	18,874	3,502	7,042	1,525
1999	21,565	1,973	6,963	2,057
2000	26,997	2,132	7,843	2,572
Total	136,543	35,100	45,383	11,875

Tables 3.2–3.6 show distributions of applicants to the Air Force, Army, and Marine reserve programs in 1995–1999 and 2000. Applicant pools in these two periods were similar with respect to gender, race, and education status. Applicants in 2000 were somewhat younger, i.e., more heavily concentrated in the 17- to 20-year age group, at the time of application than those who applied in 1995–1999. Applicants in 2000 also had generally lower AFQT scores, i.e., had smaller percentages in the higher AFQT percentile groups.

TABLE 3.2. RESERVE APPLICANTS TO ARMY, MARINES, AND AIR FORCE AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: GENDER

Gender	1995–1999		2000	
	Count	%	Count	%
Male	114,390	73.1	27,225	72.8
Female	41,991	26.9	10,187	27.2

TABLE 3.3. RESERVE APPLICANTS TO ARMY, MARINES, AND AIR FORCE AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: RACE

Race	1995–1999		2000	
	Count	%	Count	%
White	104,103	66.7	25,407	67.9
Black	34,457	22.1	8,529	22.8
Other	17,541	11.2	3,460	9.3

TABLE 3.4. RESERVE APPLICANTS TO ARMY, MARINES, AND AIR FORCE AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: EDUCATION LEVEL

Education level at examination	1995–1999		2000	
	Count	%	Count	%
Below HS senior*	19,492	12.5	5,848	15.6
HS senior	41,731	26.7	9,893	26.5
HS diploma	85,393	54.6	19,609	52.5
Some college	3,583	2.3	801	2.1
Bachelor's	5,605	3.6	1,140	3.0
Graduate	561	0.4	92	0.2

*Encompasses following three cases: 1) one who is pursuing completion of GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc.; 2) one who is not attending high school and who is neither a high school graduate nor an alternative high school credential holder; 3) one who is attending high school and is not yet a senior.

TABLE 3.5. RESERVE APPLICANTS TO ARMY, MARINES, AND AIR FORCE AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: AGE

Age	1995–1999		2000	
	Count	%	Count	%
17–20 yr	106,608	68.2	27,014	72.2
21–25 yr	29,822	19.1	7,085	18.9
26–30 yr	11,209	7.2	2,159	5.8
>30 yr	8,723	5.6	1,154	3.1

TABLE 3.6. RESERVE APPLICANTS TO ARMY, MARINES, AND AIR FORCE AT MEPS WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: AFQT SCORE

AFQT	1995–1999		2000	
	Count	%	Count	%
93–99	9,360	6.2	2,086	5.6
65–92	57,024	37.7	12,805	34.5
50–64	39,613	26.2	9,054	24.4
31–49	40,340	26.7	11,760	31.7
1–30	5,002	3.3	1,436	3.9

Table 3.7 shows the top medical categories of disqualifications using the categories employed by U.S. MEPCOM. Weight and lung/chest disqualifications dominate in both years 1995–1999 and 2000. Note that some categories shown (e.g., weight) include disqualifications that are “temporary,” i.e., once remediated, condition is no longer disqualifying. Percentages of disqualifications attributable to each category in 2000 are fairly consistent with those in 1995–1999, except for “lung/chest.”

TABLE 3.7. TOP MEPS MEDICAL DISQUALIFICATIONS FOR ARMY, AIR FORCE, AND MARINE RESERVE APPLICANTS IN 1995–1999 AND 2000

Code	Cause	1995–1999		2000	
		Count	%	Count	%
52	Weight	5,381	20.8	1,544	22.8
28	Lung/chest	3,041	11.8	1,114	16.4
37	Lower extremities	1,844	7.1	502	7.4
71	Audiometer	1,834	7.1	458	6.7
4M	Cannabis	1,575	6.1	414	6.1
36	Feet	1,169	4.5	222	3.3
40	Skin/lymphatics	1,142	4.4	292	4.3
57	Blood pressure	897	3.5	121	1.8
35	Upper extremities	886	3.4	243	3.6
60	Refraction	717	2.8	174	2.6
4Z	Other psychiatric failure	637	2.5	138	2.0
34	Genitourinary system	608	2.4	246	3.6
31	Abdomen/viscera	596	2.3	163	2.4
38	Spine/other musculature	587	2.3	137	2.0
41	Neurologic	572	2.2	128	1.9
50	Other tests	436	1.7	57	0.8
43	Psychiatric (general)	415	1.6	97	1.4
4C	Psychiatric (drug abuse)	343	1.3	89	1.3
	Total	25,812	100.0	6,786	100.0

Tables 3.8–3.13 summarize demographic characteristics of Army and Air National Guard applicants in CYs 1995–1999 and in 2000.

Table 3.8 shows the numbers of applicants to the two programs. Numbers of applications to each program in 2000 are roughly one-fifth (i.e., are consistent with) the respective numbers in 1995–1999.

**TABLE 3.8. ARMY AND AIR NATIONAL GUARD APPLICANTS AT MEPS
WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: SERVICE**

Service	1995–1999		2000	
	Count	%	Count	%
Army National Guard	193,708	89.8	37,357	88.1
Air National Guard	22,102	10.2	5,023	11.9

Table 3.9 shows gender distribution of applicants to these programs. Applicants in 2000 had a significantly greater proportion of females than those in 1995–1999.

**TABLE 3.9. ARMY AND AIR NATIONAL GUARD APPLICANTS AT MEPS
WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: GENDER**

Gender	1995–1999		2000	
	Count	%	Count	%
Male	170,592	79.1	32,199	76.0
Female	45,206	20.9	10,181	24.0

Table 3.10 shows the distribution of applicants by race. Distribution in 2000 was close to that in 1995–1999.

**TABLE 3.10. ARMY AND AIR NATIONAL GUARD APPLICANTS AT MEPS
WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: RACE**

Race	1995–1999		2000	
	Count	%	Count	%
White	165,201	76.6	32,777	77.4
Black	34,837	16.2	6,732	15.9
Other	15,530	7.2	2,856	6.7

Table 3.11 shows distribution of National Guard applicants by education level at time of application. Applicants in 2000 had a somewhat lower education level overall, with a greater percentage applying before completion of high school.

**TABLE 3.11. ARMY AND AIR NATIONAL GUARD APPLICANTS AT MEPS
WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: EDUCATION LEVEL**

Education level at examination	1995–1999		2000	
	Count	%	Count	%
Below HS senior*	34,170	15.8	7,104	16.8
HS senior	48,543	22.5	11,282	26.7
HS diploma	121,126	56.2	21,912	51.8
Some College	5,224	2.4	936	2.2
Bachelor's	5,949	2.8	941	2.2
Graduate	550	0.3	147	0.3

*Encompasses following three cases: 1) one who is pursuing completion of GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc.; 2) one who is not attending high school and who is neither a high school graduate nor an alternative high school credential holder; 3) one who is attending high school and is not yet a senior.

Table 3.12 shows distribution of National Guard applicants by age group at time of application. Applicants in 2000 were somewhat younger overall, with 71.6% of applicants being in the 17- to 20-year age group, vs 65.2% in 1995–1999. This is consistent with Table 3.11 showing a greater percentage of applicants without a completed high school education.

**TABLE 3.12. ARMY AND AIR NATIONAL GUARD APPLICANTS AT MEPS
WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: AGE**

Age	1995–1999		2000	
	Count	%	Count	%
17–20 yr	140,626	65.2	30,336	71.6
21–25 yr	42,180	19.5	7,746	18.3
26–30 yr	17,975	8.3	2,667	6.3
>30 yr	15,001	7.0	1,631	3.8

Table 3.13 shows distribution of National Guard applicants by AFQT score. Applicants in 2000 scored slightly higher compared with those in 1995–1999.

**TABLE 3.13. ARMY AND AIR NATIONAL GUARD APPLICANTS AT MEPS
WHO RECEIVED A MEDICAL EXAMINATION IN 1995–1999 VS 2000: AFQT SCORE**

AFQT	1995–1999		2000	
	Count	%	Count	%
93–99	8,602	4.3	1,943	4.7
65–92	61,839	30.9	13,581	32.6
50–64	44,051	22.0	9,535	22.9
31–49	76,550	38.3	14,559	35.0
1–30	8,769	4.4	2,008	4.8

Table 3.14 shows top medical categories of disqualifications using all categories employed by U.S. MEPCOM. Weight, which is generally a temporary disqualification, was the top category by a wide margin.

TABLE 3.14. TOP MEPS MEDICAL DISQUALIFICATIONS FOR NATIONAL GUARD APPLICANTS IN 1995–1999 AND 2000

Code	Category	1995–1999		2000	
		Count	%	Count	%
52	Weight	2,005	20.4	458	21.8
28	Lung/chest	771	7.8	167	7.9
37	Lower extremities	726	7.4	136	6.5
71	Audiometer	712	7.2	153	7.3
4M	Cannabis	675	6.9	279	13.3
36	Feet	509	5.2	71	3.4
40	Skin/lymphatics	485	4.9	108	5.1
57	Blood pressure	454	4.6	49	2.3
35	Upper extremities	338	3.4	59	2.8
60	Refraction	287	2.9	76	3.6
4Z	Other psychiatric failure	273	2.8	77	3.7
34	Genitourinary system	260	2.6	60	2.9
31	Abdomen/viscera	255	2.6	58	2.8
38	Spine/other musculature	236	2.4	44	2.1
41	Neurologic	195	2.0	33	1.6
42	Psychiatric (general)	161	1.6	0	0.0
50	Other tests	133	1.4	21	1.0
58	Pulse	126	1.3	18	0.9
	Total	9,831	100.0	2,105	100.0

Hospitalizations

All hospitalization records are summarized, regardless of whether AMSARA has an accession record corresponding to the hospitalized individual. Hospitalization records are for admission of a servicemember to any military treatment facility.

Tables 3.15 and 3.16 examine the numbers of individuals hospitalized among active duty enlistees. Counts of active duty enlistees hospitalized in CYs 1995–2000 at any point during service are shown in Table 3.15, and the subset of those occurring within the first year of service are shown in Table 3.16. Note that a person is counted more than once only if he or she is hospitalized in multiple years.

It can be seen from Table 3.15 that overall numbers of hospitalizations for each service have dropped dramatically over this period, particularly beginning in 1997. This is likely due, at least in part, to the adoption of the Tricare system around that time.

TABLE 3.15. ACTIVE DUTY ENLISTED PERSONS HOSPITALIZED IN CYs 1995–2000

Year of hospitalization	Army	Navy	Marines	Air Force
1995	49,883	28,892	11,448	27,840
1996	43,855	27,032	10,324	23,645
1997	27,297	17,355	6,545	13,758
1998	22,421	12,754	5,517	10,056
1999	20,799	10,606	5,223	7,914
2000	19,798	11,547	5,570	9,636
Total	184,053	108,186	44,627	92,849

It can be seen from Table 3.16 that the downward trend in overall hospitalizations is also apparent for those occurring during the first year of service. The only exception is a surprisingly high number of hospitalizations among first year Air Force enlistees in CY 2000 (3,014 individuals) relative to prior years. AMSARA is investigating possible reasons for this unexpected result.

TABLE 3.16. ACTIVE DUTY ENLISTED PERSONS HOSPITALIZED WITHIN 1 YEAR OF SERVICE IN CYs 1995–2000

Year of hospitalization	Army	Navy	Marines	Air Force*
1995	6,157	2,537	1,763	2,765
1996	5,817	2,430	1,507	2,124
1997	3,888	1,743	1,139	1,232
1998	2,791	1,571	1,034	987
1999	2,514	NA†	NA†	NA†
2000	3,283	1,604	1,076	3,014+
Total	24,450	NA†	NA†	NA†

* Number of persons hospitalized in the Air Force increased in 2000, whereas in 2000 AMSARA reported a decline in hospitalizations over 1995–1999 across all services.

† Hospitalization records for 1999 had many missing values for length of service.

Table 3.17 shows hospitalization counts according to medical category of the primary diagnosis code. Categories are taken directly from ICD9. "Others" represents a wide range of diagnoses that do not fit the categories used. Condition descriptions including the word "other" indicate a condition not fitting a more specific ICD9 code. For example, "other diseases of respiratory tract" indicates all respiratory tract diseases that do not fit a specific ICD9 code for such diseases.

Over 16% of hospitalizations in the Army, Navy, and Air Force are due to complications of pregnancy, childbirth, and puerperium, whereas most hospitalizations for the Marines fall under "injury." This difference among services could be due in part to a difference in percentages of females in difference services.

TABLE 3.17. HOSPITAL ADMISSIONS AMONG ACTIVE DUTY ENLISTEES BY SERVICE AND MEDICAL CATEGORY IN CYs 1995–2000

Medical category	Army		Navy		Marines		Air Force	
	Count	%	Count	%	Count	%	Count	%
Complications of pregnancy, childbirth, and puerperium	35,303	16.1	20,662	16.4	4,902	9.6	18,896	17.6
Injuries	20,985	9.6	9,399	7.5	6,525	12.7	7,842	7.3
Neurotic and personality disorders and other mental disorders	15,429	7.0	11,762	9.4	4,000	7.8	6,080	5.7
Arthropathies and related disorders	15,314	7.0	8,605	6.8	4,775	9.3	6,501	6.1
Symptoms (780–789)	8,925	4.1	4,936	3.9	1,790	3.5	4,065	3.8
Disorder of oral cavity, salivary glands, and jaws	7,172	3.3	2,244	1.8	685	1.3	6,974	6.5
Alcohol and drug dependence	6,470	2.9	5,432	4.3	3,101	6.1	3,118	2.9
Other psychoses	5,040	2.3	3,345	2.7	1,040	2.0	2,016	1.9
Other diseases of respiratory tract	4,988	2.3	4,204	3.3	1,478	2.9	3,676	3.4
Hernia of abdominal cavity	4,515	2.1	2,807	2.2	1,720	3.4	2,356	2.2
Acute respiratory infections	3,373	1.5	537	0.4	404	0.8	767	0.7
Other diseases of urinary system	3,210	1.5	1,938	1.5	665	1.3	1,847	1.7
Infections of skin and subcutaneous tissue	3,135	1.4	2,309	1.8	1,647	3.2	1,164	1.1
Appendicitis	3,068	1.4	2,101	1.7	1,075	2.1	1,819	1.7
Other diseases from viruses and chlamydiae	2,885	1.3	666	0.5	358	0.7	1,874	1.7
Pneumonia and influenza	2,676	1.2	834	0.7	904	1.8	866	0.8
Noninfectious enteritis	2,606	1.2	883	0.7	442	0.9	1,422	1.3
Chronic obstructive pulmonary disease and allied conditions	1,995	0.9	430	0.3	182	0.4	359	0.3
Viral diseases accompanied by exanthem	1,100	0.5	598	0.5	270	0.5	227	0.2
Other bacterial diseases	849	0.4	152	0.1	104	0.2	237	0.2
Others	64,923	29.6	39,476	31.4	13,444	26.3	33,185	30.9
Total	219,655	100	125,665	100	51,214	100	107,330	100

EPTS Discharges

Table 3.18 shows EPTS discharges by service for active duty, reserve, and guard enlistees. Beginning in 1997, formats of data transmission were changed, and it appears that the data for 1995–1996 are incomplete.

TABLE 3.18. EPTS DISCHARGES BY SERVICE IN CYs 1995–2000

Service	1995	1996	1997	1998	1999	2000	Total
Army (27,188)							
Active duty	2,670	3,636	3,763	3,653	3,045	3,372*	20,139
Guard	655	731	847	1,022	776	667*	4,698
Reserves	1	229	557	642	457	465*	2,351
Navy (16,432)							
Active duty	1,416	2,273	3,191	5,127	2,539	1,829	16,375
Reserves		8	16	22	10	1	57
Marines (8,461)							
Active duty	1,095	1,470	1,628	1,409	1,235	1,055	7,892
Reserves	1	64	167	127	101	109	569
Air Force (5,774)							
Active duty	1,490	901	974	1,017	929	200†	5,511
Guard	9	7	16	57	34	11†	134
Reserve		10	24	40	47	8†	129
Total	7,337	9,329	11,183	13,116	9,173	7,717	57,855

* Data reporting incomplete—see Section 1, “Data Sources.”

† Air Force stopped providing EPTS records in 2000.

Table 3.19 demonstrates EPTS discharges for active duty enlistees by service and calendar year of the discharge. Service numbers remain mostly stable, but EPTS discharges for the Navy spike in 1998 (5,127 compared with at most 3,200 in other years). Note that Air Force stopped providing EPTS records to U.S. MEPCOM on EPTS discharges in early 2000, hence the number of Air Force discharge records reported for CY 2000 dropped dramatically.

TABLE 3.19. EPTS DISCHARGES FOR ACTIVE DUTY REGULAR SERVICEMEMBERS IN CYs 1995–2000

Year of EPTS	Army	Navy	Marines	Air Force
1995	2,670	1,416	1,095	1,490
1996	3,636	2,273	1,470	901
1997	3,763	3,191	1,628	974
1998	3,653	5,127	1,409	1,017
1999	3,045	2,539	1,235	929
2000	3,372*	1,829	1,055	200†

* Data reporting incomplete—see Section 1, “Data Sources.”

† Air Force stopped providing EPTS records in 2000.

Table 3.20 shows EPTS discharges among active duty enlistees according to medical categories utilized by U.S. MEPCOM. Asthma and orthopedic conditions (feet, knee, back, other) are major causes of EPTS discharge in all services, collectively accounting for 73.8% of all EPTS discharges in Air Force, 65.3% in Army, 29.3% in Navy, and 41.8% in Marines. Psychiatric conditions were the most common EPTS discharge for Navy and Marines, accounting for 44.4% and 32.7% of EPTS discharges, respectively. Note that services differ considerably in how they categorize and report EPTS discharges. Accordingly, differences seen below across services may reflect procedural differences more than true EPTS rates, and any comparisons across services are tenuous, at best.

TABLE 3.20. EPTS DISCHARGE FOR ACTIVE DUTY ENLISTEES IN CYs 1995–2000

Medical category	Army		Navy		Marines		Air Force	
	Count	%	Count	%	Count	%	Count	%
Orthopedics—feet	2,996	14.9	476	2.9	494	6.3	694	12.6
Asthma	2,889	14.3	2,129	13.0	693	8.8	959	17.4
Orthopedics—other	2,607	12.9	895	5.5	1,085	13.7	731	13.3
Orthopedics—knee	2,531	12.6	770	4.7	733	9.3	996	18.1
Psychiatric—other	2,176	10.8	7,276	44.4	2,580	32.7	76	1.4
Orthopedics—back	2,125	10.6	528	3.2	372	4.7	685	12.4
Other	889	4.4	737	4.5	395	5.0	294	5.3
Genitourinary system	820	4.1	476	2.9	157	2.0	121	2.2
Neurology—other	513	2.5	650	4.0	260	3.3	384	7.0
Abdomen and viscera	471	2.3	267	1.6	191	2.4	154	2.8
Vision/refraction	448	2.2	528	3.2	122	1.5	89	1.6
Chest and lung—other	357	1.8	131	0.8	116	1.5	62	1.1
Cardiovascular—other	335	1.7	309	1.9	138	1.7	91	1.7
Skin and lymphatics	315	1.6	267	1.6	81	1.0	51	0.9
Seizure disorder	197	1.0	150	0.9	78	1.0	42	0.8
Cardiovascular—other	133	0.7	121	0.7	55	0.7	9	0.2
Eyes—other	128	0.6	204	1.2	58	0.7	33	0.6
Hearing	123	0.6	195	1.2	189	2.4	18	0.3
Schizophrenia	46	0.2	49	0.3	16	0.2	1	0.0
Ears—other	29	0.1	199	1.2	71	0.9	17	0.3
Total EPTS	20,139	100	16,375	100	7,892	100	5,511	100

A more thorough examination of medical causes of EPTS discharges for each service using ICD9 codes listed in DoD Instruction 6130.4 is given in below. Tables 3.23–3.26 contain primary diagnoses for 1997–2000 (detailed codes for 1995–1996 are unavailable).

Table 3.21 shows top 20 conditions causing EPTS discharge in the Army during CYs 1997–2000. Again, it is clear that asthma and orthopedic and psychological conditions are the most common conditions underlying the reported EPTS discharges. The number of reported discharges have fluctuated over these years, including a dramatic increase in “neurotic, mood, somatoform, dissociative, or factitious disorder” discharges in 1999 and especially in 2000. Conversely, considerably fewer EPTS records listed “allergic manifestations,” “valvular heart disease,” and “insufficient healthy teeth” over this

period. Possible reasons for these fluctuations include discharge policy changes, data reporting changes, and random fluctuations in recruit health status.

**TABLE 3.21. ARMY: TOP 20 PRIMARY EPTS DISCHARGE DIAGNOSES
FOR ACTIVE DUTY REGULAR RECRUITS IN CYs 1997-2000**

DoD code	Definition	1997	1998	1999	2000
493	Asthma	601	572	408	524
724	Spine and sacroiliac joints (disease, injury, muscular spasms, weak or painful back)	258	262	205	175
734,754.6	Flat feet	224	265	190	251
719.4	Disease or chronic pain of one or both lower extremities	223	255	226	268
300	Neurotic, mood, somatoform, dissociative, or factitious disorder	170	150	230	390
717.7	Chronic retropatellar knee pain syndrome	119	124	81	92
717.9	Unstable or internally deranged joint (knee, leg, thigh, or hip)	105	69	45	53
905.2	Upper extremity deformities, injury, weakness, insufficient recovery, disease	88	99	98	107
728.7	Plantar fasciitis	82	100	52	48
737	Deviation or curvature of spine	70	75	56	52
784	Headaches, recurrent	66	73	41	50
905.4	Lower extremity deformities, injury, weakness, insufficient recovery, disease	65	78	79	67
754.5	Clubfoot and pes cavus	60	62	32	27
718.1	Shoulder instability of any major joint	54	58	50	67
732.4	Osgood-Schlatter disease (osteochondritis of tibial tuberosity)	51	64	33	41
831	Shoulder dislocation (recurrent or unreduced)	46	43	35	30
995.0	Allergic manifestations	46	36	6	10
746	Valvular heart disease (congenital)	40	21	12	10
345	Epilepsy (includes seizures)	38	43	38	35
521	Insufficient natural healthy teeth	38	16	6	8
	Total EPTS	3,763	3,653	3,045	3,372

Table 3.22 shows top 20 primary conditions causing EPTS discharge among Navy recruits. As was evident from 3.20, psychological conditions and asthma top the list. The numbers of reported discharges are unstable over the period. In particular, the numbers for CY 1998 are much higher than for the other years for most of these conditions. This reflects the overall spike in reported EPTS discharges from the Navy for CY 1998 seen in Tables 3.18 and 3.19. A notable exception is for "disease or chronic pain of one or both lower extremities," which shows a spike in CY 2000.

TABLE 3.22. NAVY: TOP 20 PRIMARY EPTS DISCHARGE DIAGNOSES FOR ACTIVE DUTY REGULAR RECRUITS IN CYs 1997-2000

DoD code	Definition	1997	1998	1999	2000
301	Personality disorders	571	581	165	129
300	Neurotic mood, somatoform, dissociative, or factitious disorder	395	731	262	170
313	Behavior disorders	379	812	104	87
493	Asthma	376	507	381	203
314	Academic skills defects	85	169	62	26
784	Headaches, recurrent	76	122	92	44
303	Alcohol dependence	59	303	133	38
307.6	Enuresis	51	95	27	15
371.6	Keratoconus	41	26	19	17
389	Hearing loss	40	13	16	26
304	Drug dependence	36	108	75	32
312	Conduct disorder	35	61	29	27
724	Spine and sacroiliac joints (disease, injury, muscular spasms, weak or painful back)	34	56	33	56
305	Alcohol abuse including other nondependent use of drugs	28	95	39	12
307.4	Sleepwalking	28	58	11	5
734, 754.6	Flat feet	27	60	12	16
V22	Pregnancy	27	45	42	47
717.9	Unstable or internally deranged joint (knee, leg, thigh, or hip)	26	35	33	31
719.4	Disease or chronic pain of one or both lower extremities	26	47	48	100
384	Perforation of the tympanic membrane	23	10	12	9
	Total EPTS	3,191	5,127	2,539	1,829

Table 3.23 shows top 20 primary conditions causing EPTS discharge among Marine recruits. The most common specific condition is suicide attempt/behavior. Informal review of these records indicated that most were related to behavior rather than actual attempts. Anecdotal information suggests that the services take a risk-averse approach to suicide threats, preferring to allow release of all who make such threats rather than risk an actual suicide. This may lead to increased suicide threats by recruits seeking an escape from the rigors of basic training. In summary, many "suicide" discharges may be for subjective diagnoses.

Other psychological conditions are also common causes of EPTS discharges reported by the Marines, as is asthma. Except for "behavior disorders," counts by cause appear to be fairly stable over the period.

TABLE 3.23. MARINES: TOP 20 PRIMARY EPTS DISCHARGE DIAGNOSES FOR ACTIVE DUTY REGULAR RECRUITS IN CYs 1997–2000

DoD code	Definition	1997	1998	1999	2000
300.9	Suicide (attempted or suicidal behavior)	258	251	156	66
313	Behavior disorders	177	31	27	12
300	Neurotic mood, somatoform, dissociative, or factitious disorder	148	169	120	102
493	Asthma	98	126	138	125
719.4	Disease or chronic pain of one or both lower extremities	75	48	51	47
305	Alcohol abuse including other nondependent use of drugs	62	39	16	3
724	Spine and sacroiliac joints (disease, injury, muscular spasms, weak or painful back)	42	27	27	37
301	Personality disorders	41	27	22	14
831	Shoulder dislocation (recurrent or unreduced)	31	30	29	16
905.4	Lower extremity deformities, injury, weakness, insufficient recovery, disease	26	22	18	30
314	Academic skills defects	24	40	25	15
717.7	Chronic retropatellar knee pain syndrome	24	15	17	33
389	Hearing loss	21	44	34	33
717.9	Unstable or internally deranged joint (knee, leg, thigh, or hip)	21	13	9	10
905.2	Upper extremity deformities, injury, weakness, insufficient recovery, disease	20	24	18	26
718.1	Shoulder instability of any major joint	18	8	25	22
784	Headaches, recurrent	18	45	24	33
303	Alcohol dependence	17	5	8	2
345	Epilepsy (includes seizures)	17	26	14	15
550	Inguinal hernia	17	15	9	4
	Total EPTS	1,628	1,409	1,235	1,055

Table 3.24 shows top 20 primary conditions causing EPTS discharge among Air Force recruits during 1997–1999. As discussed above, the numbers for CY 2000 are unreliable because the Air Force provided little data on discharge occurring in that year. Note that no psychological conditions appear among the top causes, reflecting a difference in the Air Force categorization of such discharges relative to other services.

TABLE 3.24. AIR FORCE: TOP 20 PRIMARY EPTS DISCHARGE DIAGNOSES FOR ACTIVE DUTY REGULAR RECRUITS IN CYs 1997–1999*

DoD code	Definition	1997	1998	1999
493	Asthma	183	228	183
719.4	Disease or chronic pain of one or both lower extremities	159	97	117
724	Spine and sacroiliac joints (disease, injury, muscular spasms, weak or painful back)	100	95	101
734, 754.6	Flat feet	53	49	22
784	Headaches, recurrent	47	54	55
717.7	Chronic retropatellar knee pain syndrome	37	42	41
905.2	Upper extremity deformities, injury, weakness, insufficient recovery, disease	24	32	22
717.9	Unstable or internally deranged joint (knee, leg, thigh, or hip)	19	17	8
905.4	Lower extremity deformities, injury, weakness, insufficient recovery, disease	18	24	12
737	Deviation or curvature of spine	15	10	8
718.1	Shoulder instability of any major joint	13	24	17
786.5	Chest pain	13	9	12
796	Miscellaneous condition	12	14	7
524.6	Disease of jaw or associated tissues	11	10	16
735	Deformities of toes, acquired (includes hallux valgus)	11	4	4
831	Shoulder dislocation (recurrent or unreduced)	10	4	2
836	Knee dislocation (recurrent or unreduced)	10	3	7
723.8	Malunion or nonunion of any fracture (except ulnar styloid process)	9	5	5
070	Viral hepatitis	8	14	11
550	Inguinal hernia	8	10	7
	Total EPTS	974	1,017	929

* Air Force stopped providing EPTS discharge records to AMSARA in 2000.

Disability

Data on the medical reasons for disability discharges from the Army and Air Force are summarized in Tables 3.25 and 3.26, respectively. Medical reasons for discharge records in each datasets are coded according to the Veterans Administration Schedule for Rating Disabilities, as are medical categories utilized in Tables 3.25 and 3.26. Counts include those placed on temporary disability for evaluation at a later date. All records are included regardless of rank and length of service of the subjects. Navy and Marine Corps disability data are unavailable to AMSARA.

Table 3.25 provides all medical categories for disability discharges from the Air Force. Musculoskeletal and psychiatric problems are the most common causes of disability discharge from the Air Force.

TABLE 3.25. MEDICAL CATEGORIES OF AIR FORCE DISABILITY DISCHARGES IN 1995–2000

Category	1995–2000	
	Count	%
Musculoskeletal system, muscle injuries	2,656	30.9
Psychotic*, mental organic†, and psychoneurotic§ disorders	1,906	22.2
Respiratory system	805	9.4
Neurological conditions and convulsive disorders	705	8.2
Digestive system	473	5.5
Cardiovascular system	320	3.7
Peripheral nerves	275	3.2
Epilepsies	259	3.0
Endocrine system	227	2.6
Systemic conditions	187	2.2
Organic brain disorders	169	2.0
Hemic and lymphatic systems	159	1.9
Eye, ear and loss of taste and smell	157	1.8
Genitourinary system	112	1.3
Skin	68	0.8
Gynecological conditions	58	0.7
Cranial nerves	48	0.6
Dental and oral conditions	6	0.1
Total discharges (excludes 23 missing values)	8,590	100.0

* Schizophrenia, bipolar disorder, major depression, paranoid disorders, and psychoses.

† Various dementias.

§ Generalized anxiety disorders; psychogenic amnesia; psychogenic fugue; multiple personality disorder; conversion disorder; psychogenic pain disorder; phobic, obsessive compulsive dysthymic, adjustment, depersonalization, and posttraumatic disorders; and hypochondriasis.

Table 3.26 provides all medical categories for disability discharges from the Army. The most common disability discharges from the Army are for musculoskeletal conditions, accounting for 65% of all discharges.

TABLE 3.26. MEDICAL CATEGORIES OF ARMY DISABILITY DISCHARGES IN 1995–2000

Category	1995–2000	
	Count	%
Musculoskeletal system, muscle injuries	26,231	65.2
Psychotic*, organic mental†, and psychoneurotic§ disorders	2,955	7.4
Respiratory system	2,360	5.9
Neurological conditions and convulsive disorders	1,914	4.8
Peripheral nerves	1,144	2.8
Cardiovascular system	1,026	2.6
Digestive system	941	2.3
Endocrine system	611	1.5
Systemic conditions	597	1.5
Eye, ear and loss of taste and smell	491	1.2
Epilepsies	407	1.0
Genitourinary system	394	1.0
Hemic and lymphatic systems	340	0.8
Skin	299	0.7
Organic brain disorders	276	0.7
Gynecological conditions	107	0.3
Cranial nerves	95	0.2
Dental and oral conditions	13	0.0
Total discharges (excludes 595 missing values)	40,201	100.0

* Schizophrenia, bipolar disorder, major depression, paranoid disorders, and psychoses.

† Various dementias.

§ Generalized anxiety disorders; psychogenic amnesia; psychogenic fugue; multiple personality disorder; conversion disorder; psychogenic pain disorder; phobic, obsessive compulsive dysthymic, adjustment, depersonalization, and posttraumatic disorders; and hypochondriasis.

4. ACTIVE DUTY ENLISTED PERSONNEL WITH ACCESSION RECORDS: DESCRIPTIVE STATISTICS

Summary statistics on data for enlisted personnel gained in 1995–2000 are presented with the following conventions:

- All enlisted personnel statistics are for those on or applying for active duty. Reserves and National Guard are not included.
- All merging of data tests to derive percentages and rates was performed at an individual level by SSN. For example, in presenting the percentage of individuals gained in 1998 who received a discharge, only those discharges with SSN matching a 1998 accession record SSN were included.
- All references to dates refer to calendar year.
- All references to “applicants” refer to those who had a physical examination at MEPS. Applicants who were dropped from consideration before the medical exam (e.g., those who performed too poorly on the AFQT) are not included.
- Totals may slightly vary between tables depending on the variable by which percentages or rates are presented. Records with a missing variable relevant to a given table are not included in that table.
- Education level and age at time of application at MEPS are used under “MEPS/Gain” and “Waivers” because MEPS data are the only source of this information for activities prior to accession. For “Hospitalizations,” “EPTS Discharges,” and “Disability Discharges in Army and Air Force,” education level and age at time of accession are used.

MEPS/Gain

More than 1,575,000 applicants were examined for medical fitness at MEPS in 1995–2000. Data on these applicants were merged with gain data provided by DMDC to examine accession patterns.

Table 4.1 shows numbers of applicants for service and subsequent accession rate for the aggregate 1995–1999 and separately for 2000. At the time this report was prepared, accession data were unavailable past the end of CY 2000. Army accession rates are somewhat lower than for other services, partly because of missing Army accessions data for the second half of 1997.

Applications to each service in CY 2000 are fairly consistent with those of the previous 5 years, because the CY 2000 applications are roughly one-fifth that shown over the previous five years combined. However, accession rates within CY 2000 are considerably higher than rates within CYs 1995–1999. This reflects higher within-year accession rates in 2000 than in the prior years, although at least part of this difference is attributable to the lack of Army accession records for the second half of CY 1997. More information will be available in the 2002 AMSARA Annual Report.

TABLE 4.1. APPLICANTS AND SUBSEQUENT ACCESSIONS BY SERVICE: 1995–1999 AND 2000

Service	All applicants 1995–1999			Applicants in 2000	
	Count	Accession rate/per 100	Accession rate/100 within CY	Count	Accession rate/100 within CY
Army	440,541	61.4	35.0	90,287	43.0
Navy	285,861	67.6	40.8	66,932	47.8
Marines	221,334	67.2	34.7	43,011	36.5
Air Force	185,630	71.2	40.3	42,191	53.3
Total	1,333,366			242,421	

Table 4.2 shows accession rates according to length of time since application. Most of these accessions have occurred within 1 year of application for service. Accession rates are noticeably low among those who applied in 1997, owing to lack of Army data for the second half of 1997.

TABLE 4.2. ACCESSIONS WITHIN 1 AND 2 YEARS OF APPLICATION FOR ENLISTMENT: 1995–2000

Year of exam	Applicants	Within 1 year of application		Within 2 years of application	
		No.	Rate/100	No.	Rate/100
1995	226,661	142,695	63.0	152,708	67.4
1996	243,269	150,474	61.9	158,244	65.0
1997	223,151	110,657	49.6	120,632	54.1
1998	206,590	129,639	62.8	140,640	68.1
1999	233,695	154,616	66.2	162,043	NA*
2000	242,421	108,998	NA*	108,998	NA*

* Rates are not calculated because of incomplete follow-up.

Demographic features of those who applied for enlisted service in 1995–1999 and 2000 separately are shown in Tables 4.3–4.7. Totals vary somewhat between tables because of the different number of missing values for different variables.

Chi-square analyses were initially performed to determine the difference in distributions of both applicants and accessions by demographic characteristics between those who applied in years 1995–1999 and 2000. Owing to large population numbers, all chi-squares were statistically significant and therefore will not be reported.

In 1995–1999, most applicants were male (about 80%), white (about 70%), and aged 17–20 years (about 73%); the demographic profile was about the same for applicants in 2000. Demographic distributions of accessions reflect the applicant population. Slight differences may be seen between applicants and accessions for those who applied in CY 2000, although these are likely attributable to lack of complete follow-up data on accessions and to random fluctuations that occur within any given year.

Comparing the applicant population of 1995–1999 with that of 2000, there is little difference in gender, race, and age. Educational status differs somewhat at time of

application, although with no clear pattern. Finally, AFQT performance is somewhat lower for applicants in 2000 than in 1995–1999.

Comparing the accession subset of those who applied in 1995–1999 with that of 2000, gender and race are similar. However, both age and education status of accessions differ, with applicants in 2000 being generally older and more likely to have completed high school. This is likely due to incomplete follow-up of those who applied in 2000. The youngest applicants are most likely still in high school and would not access until 2001 or later, when their high school education is completed.

TABLE 4.3. APPLICANTS AND SUBSEQUENT ACCESSIONS BY GENDER: 1995–1999 AND 2000

Gender	1995–1999				2000			
	Applicants	%	Accessions	%	Applicants	%	Accessions	%
Male	903,234	79.8	610,080	82.1	192,031	79.5	87,224	80.6
Female	228,075	20.2	132,634	17.9	49,578	20.5	20,963	19.4
Total	1,131,309		742,714		241,609		108,187	

TABLE 4.4. APPLICANTS AND SUBSEQUENT ACCESSIONS BY RACE: 1995–1999 AND 2000

Race	1995–1999				2000			
	Applicants	%	Accessions	%	Applicants	%	Accessions	%
White	795,809	70.5	523,427	70.6	169,163	70.7	73,827	69.6
Black	220,063	19.5	141,154	19.1	48,405	20.2	23,028	21.7
Other	113,123	10.0	76,325	10.3	21,854	9.1	9,230	8.7
Total	1,128,995		740,906		239,422		106,085	

TABLE 4.5. APPLICANTS AND SUBSEQUENT ACCESSIONS BY AGE GROUP AT TIME OF APPLICATION: 1995–1999 AND 2000

Age	1995–1999				2000			
	Applicants	%	Accessions	%	Applicants	%	Accessions	%
17–20 yr	820,793	72.5	548,360	73.7	177,804	73.3	75,372	69.2
21–25 yr	248,989	22.0	161,725	21.7	51,729	21.3	27,658	25.4
26–30 yr	49,344	4.4	27,331	3.7	10,014	4.1	4,739	4.3
>30 yr	13,023	1.2	6,151	0.8	2,858	1.2	1,213	1.1
Total	1,132,149		743,567		242,405		108,982	

TABLE 4.6. APPLICANTS AND SUBSEQUENT ACCESSIONS BY EDUCATION LEVEL AT TIME OF APPLICATION: 1995-1999 AND 2000

Education level at MEPS	1995-1999				2000			
	Applicants	%	Accessions	%	Applicants	%	Accessions	%
Below HS senior*	31,760	2.8	17,931	2.4	9,021	3.7	3,148	2.9
HS senior	329,116	29.1	189,292	25.4	72,063	29.8	13,436	12.4
HS diploma	721,031	63.7	505,318	67.9	149,389	61.8	86,101	79.3
Some college	25,953	2.3	17,848	2.4	6,776	2.8	3,965	3.7
Bachelor's	23,169	2.0	12,941	1.7	4,057	1.7	1,786	1.6
Graduate	1,715	0.2	913	0.1	368	0.2	153	0.1
Total	1,132,744		744,243		241,674		108,589	

*Encompasses following three cases: 1) one who is pursuing completion of GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc; 2) one who is not attending high school and who is neither a high school graduate nor an alternative high school credential holder; 3) one who is attending high school and is not yet a senior.

TABLE 4.7. APPLICANTS AND SUBSEQUENT ACCESSIONS BY AFQT PERCENTILE: 1995-1999 AND 2000

AFQT score	1995-1999				2000			
	Applicants	%	Accessions	%	Applicants	%	Accessions	%
93-99	47,857	4.2	32,777	4.4	8,891	3.7	4,231	3.9
65-92	387,646	34.4	265,108	35.6	76,713	31.8	35,725	32.9
50-64	309,406	27.4	208,071	28.0	67,169	27.9	30,715	28.3
31-49	348,528	30.9	227,722	30.6	81,092	33.6	37,094	34.1
01-30	33,953	3.0	10,208	1.4	7,293	3.0	903	0.8
Total	1,127,390		743,886		241,158		108,668	

Table 4.8 shows the most common MEPS disqualification codes for those who applied for service in 1995–1999 and 2000. Weight and cannabis use disqualifications dominate in both 1995–1999 and 2000, although these disqualifications are “temporary” and no longer disqualifying once remediated.

TABLE 4.8. TOP MEPS DISQUALIFICATIONS CODES FOR ACTIVE DUTY APPLICANTS IN 1995–1999 AND 2000

Code	Cause	1995–1999		2000	
		Disqualifications	%	Disqualifications	%
52	Weight	42,363	19.7	10,981	22.5
4M	Cannabis	30,554	14.2	9,575	19.6
28	Lung/chest	14,826	6.9	2,965	6.1
71	Audiometer	13,771	6.4	3,330	6.8
37	Lower extremities	13,273	6.2	2,631	5.4
36	Feet	9,431	4.4	1,466	3.0
40	Skin/lymphatics	8,938	4.2	1,815	3.7
4Z	Other psychiatric failure	7,057	3.3	1,931	4.0
57	Blood pressure	6,993	3.3	924	1.9
35	Upper extremities	6,820	3.2	1,404	2.9
60	Refraction	6,239	2.9	1,568	3.2
34	Genitourinary system	5,069	2.4	1,101	2.3
31	Abdomen/viscera	4,711	2.2	949	1.9
50	Other tests	4,536	2.1	922	1.9
38	Spine/other musculature	3,989	1.9	689	1.4
4C	Cocaine	3,730	1.7	982	2.0
41	Neurologic	3,572	1.7	733	1.5
42	Psychiatric (general)	3,107	1.4	6	0.0
43	Pelvic—female	2,544	1.2	307	0.6
58	Pulse	2,386	1.1	465	1.0
29	Heart	2,234	1.0	476	1.0
	Total	214,756	100.0	48,838	100.0

Waivers

Applicants medically disqualified at the MEPS may receive an accession waiver for the disqualifying condition(s) from a service-specific waiver authority. Individuals commonly have multiple records of waiver consideration by the same waiver authority, likely reflecting resubmissions, perhaps with additional information requested by the waiver authority or other grounds for renewed consideration. Only the most current record on each individual was considered in this section. Therefore the numbers of considerations shown do not reflect overall workload of the waiver authorities.

Note that a waiver application that is denied by one service’s waiver authority might be submitted to another. In such a case, the individual would be counted twice in Tables

4.9–4.18. Finally, note that only waiver applications are summarized, and these individuals may eventually gain or have been gained into military duty.

Table 4.9 shows numbers of individuals considered for medical waivers and the approval rates in 1995–2000 by year and service of the waiver authority. In this section, years shown represent year of waiver consideration. This is a departure from the approach in the 2000 AMSARA Annual Report, in which year shown was that of physical examination. Accordingly, numbers of waivers in this section are not directly comparable with those in the 2000 report. This change emphasizes when the waiver was considered rather than when the condition was identified because dates may differ by up to 2 years.

Approval rates are generally over 60% for the Army, Navy, and Marines, whereas Air Force approval rates are generally below 40%. Approval rate for Navy/Marines is lower in 2000 than in other years except for 1995, perhaps partly reflecting many actions that have not yet been completed (e.g., waiver application that may be resubmitted with additional information, etc.).

TABLE 4.9. WAIVER CONSIDERATIONS FOR ACTIVE DUTY APPLICANTS BY SERVICE: 1995–2000

Year	Army			Navy, Marines			Air Force		
	Approvals		Denials	Approvals		Denials	Approvals		Denials
	Count	Rate/ 100		Count	Rate/ 100		Count	Rate/ 100	
1995	3,180	75.6	1,026	2,117	47.0	2,391	582	30.9	1,303
1996	4,379	67.2	2,137	2,635	80.2	652	466	28.5	1,171
1997	3,764	54.8	3,110	2,230	63.3	1,308	756	38.6	1,201
1998	3,499	62.7	2,085	3,311	56.8	2,523	601	39.6	915
1999	3,393	71.0	1,386	4,264	57.3	3,173	575	33.1	1,163
2000	4,899	NA	NA	2,530	52.3	2,305	733	41.0	1,056
Total	23,114		NA	17,087		12,352	3,713		6,809

*Army waiver denials for 2000 are unavailable to AMSARA.

Table 4.10 shows waivers granted and subsequent accessions within 1 and 2 years of waiver approval. Individuals were counted only once regardless of which waiver authority granted the waiver; hence the sum of waiver approvals is smaller than the sum of approvals by service from Table 4.8.

Most accessions occur within the first year of application. Conclusions are difficult to draw from these data because the shortcomings in Army data for 1997 (see Section 1, "Data Sources") exerts a strong downward influence on calculated accession rates for those granted waivers in 1996 and especially 1997.

TABLE 4.10. ACCESSIONS WITHIN 1 AND 2 YEARS OF APPLICATION FOR ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1995–2000 BY YEAR

Year of waiver consideration	Applicants with waivers granted	Applicants who accessed within 1 year of application*		Applicants who accessed within 2 years of application*	
		Count	Rate/100	Count	Rate/100
1995	5,879	4,140	70.4	4,315	73.4
1996	7,480	5,127	68.5	5,431	72.6
1997	6,750	3,916	58.0	4,297	63.7
1998	7,411	5,271	71.1	5,619	75.8
1999	8,232	6,348	77.1	6,470	NA
2000	8,162	4,774	NA	4,774	NA
Total	43,914	29,576		30,906	

*Army accessions data are missing for the second half of CY 1997, causing a reduction in calculated accession rates for this and prior years.

Table 4.11 shows gender distributions for 1995–1999 and 2000, both for all applicants during those years with waivers granted and for those who subsequently came onto active duty. Gender percentages among applicants granted waivers are similar to percentages for those who eventually accessed. For example, 81.4% of those granted waivers in 1995–1999 were male, and 83.0% of those accessed after being granted a waiver were male. Similar rates were seen for those granted waivers in 2000.

TABLE 4.11. GENDER OF ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1995–1999 OR 2000

Gender	1995–1999 Applicants with waiver granted				2000 Applicants with waiver granted			
	All waivers		Accessed only		All waivers		Accessed only	
	Count	%	Count	%	Count	%	Count	%
Male	28,692	81.4	21,765	83.0	6,543	81.2	3,892	82.7
Female	6,557	18.6	4,463	17.0	1,512	18.8	814	17.3

Table 4.12 shows age distributions for 1995–1999 and 2000, both for all applicants during those years with waivers granted and for those who subsequently came onto active duty. In both periods, the accessed population is similar in age to the corresponding waived applicant pools. The population of applicants in 2000 was somewhat older compared with 1995–1999, and the same was true of the accessed population. In the waived population, for example, 65.3% of the individuals were age 17–20 years in 1995–1999, whereas only 61.2% were in this youngest age bracket in 2000. Only 57.8% of accessions in 2000 were in this youngest age group. These lower percentages of younger applicants and accessions may be partly due to incomplete follow-up of those who applied for service in 2000. The youngest applicants are most likely still in high school and would not pursue a medical waiver or access until 2001 or later, when their high school education is completed.

TABLE 4.12. AGE OF ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1995–1999 OR 2000

Age at time of waiver	1995–1999 Applicants with waiver granted				2000 Applicants with waiver granted			
	All		Accessed		All		Accessed	
	Count	%	Count	%	Count	%	Count	%
17–20 yr	23,011	65.3	17,254	65.7	4,974	61.2	2,756	57.8
21–25 yr	9,579	27.2	7,220	27.5	2,374	29.2	1,579	33.1
26–30 yr	2,093	5.9	1,426	5.4	586	7.2	343	7.2
>30	575	1.6	343	1.3	187	2.3	94	2.0

Table 4.13 shows race distributions for 1995–1999 and 2000, both for all applicants during those years with waivers granted and for those who subsequently came onto active duty. As with the gender and age comparisons above, race distribution of applicants who accessed after being granted a waiver is similar to that of the population granted waivers. Likelihood of accession after receiving a medical waiver shows only a minor difference by race.

TABLE 4.13. RACE OF ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1995–1999 OR 2000

Race	1995–1999 Applicants with waiver granted				2000 Applicants with waiver granted			
	All		Accessed		All		Accessed	
	Count	%	Count	%	Count	%	Count	%
White	25,580	72.7	18,971	72.5	5,841	73.1	3,334	71.8
Black	6,538	18.6	4,866	18.6	1,481	18.5	918	19.8
Other	3,072	8.7	2,341	8.9	669	8.4	391	8.4

Table 4.14 shows education levels at the time of application for 1995–1999 and 2000, both for all applicants during those years with waivers granted and for those who subsequently came onto active duty. The applicant pools for 1995–1999 and 2000 are slightly different but with neither clearly higher nor lower in overall education level. For the accessed individuals, the education level appears to be generally higher for those in 2000 than those in 1995–1999, although this could be due to selection bias from incomplete follow-up for 2000. Those granted waivers in 2000 and subsequently accessed in that same year would more likely have completed high school at time of application. Those who had not completed high school at time of application would more likely not access until 2001 or later, when their high school education is completed.

TABLE 4.14. EDUCATION LEVEL OF ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1995–2000

Education level at time of application	1995–1999 Applicants with waiver granted				2000 Applicants with waiver granted			
	All		Accessed		All		Accessed	
	Count	%	Count	%	Count	%	Count	%
Below HS senior*	839	2.4	577	2.2	204	2.5	109	2.3
HS senior	9,523	27.0	6,462	24.6	2,312	28.5	1,047	22.0
HS diploma	23,046	65.3	17,890	68.0	5,088	62.7	3,310	69.5
Some college	818	2.3	620	2.4	222	2.7	149	3.1
At least BS	1,074	3.0	746	2.8	284	3.5	150	3.1

*Encompasses following three cases: 1) one who is pursuing completion of GED or other test-based high school equivalency diploma, vocational school, or secondary school, etc.; 2) one who is not attending high school and who is neither a high school graduate nor an alternative high school credential holder; 3) one who is attending high school and is not yet a senior.

Table 4.15 shows AFQT scores at time of application for 1995–1999 and 2000, both for all applicants during those years with waivers granted and for those who subsequently came onto active duty. Distributions of AFQT scores for applicants and accessions with a waiver are similar for both 1995–1999 and 2000.

TABLE 4.15. AFQT SCORES OF ENLISTED APPLICANTS WHO RECEIVED A WAIVER IN 1995–2000

Percentile score	1995–1999				2000			
	All		Accessed		All		Accessed	
	Count	%	Count	%	Count	%	Count	%
93–99	1,998	5.7	1,448	5.5	436	5.4	242	5.1
65–92	12,862	36.5	9,611	36.6	2,771	34.2	1,619	34.0
50–64	9,725	27.6	7,296	27.8	2,297	28.3	1,344	28.2
31–49	10,047	28.5	7,528	28.7	2,433	30.0	1,481	31.1
01–30	571	1.6	362	1.4	168	2.1	81	1.7

Tables 4.16–4.18 provide the most common medical conditions for which accession waivers were granted by the Army, Navy/Marines, and Air Force waiver authorities, respectively. Results are not directly comparable across services because coding schemes are not common to all. Army and Air Force employ the full range of codes from ICD9, whereas the Navy/Marines use the subset of ICD9 codes specified in DoD Instruction 6130.4 (see the appendix).

Note that results are shown by condition rather than by individual. For example, an individual receiving a medical waiver for two conditions simultaneously would have both conditions counted for the purposes of Tables 4.16–4.18. Therefore numbers of conditions for which waivers were granted are slightly larger than numbers of individuals granted medical waivers (Table 4.8).

Table 4.16 shows that the most common conditions for which a waiver was granted by the Army were hearing loss, myopia and related conditions, and asthma. These three conditions accounted for approximately 30% of all medical conditions for which the Army granted waivers.

TABLES 4.16. TOP 10 ICD9 CODES FOR WAIVERS GRANTED IN 1995–2000: ARMY

ICD9	Definition	Count	%
389	Hearing loss	3,002	13.4
367.1, 367	Myopia, disorders of refraction and accommodation	1,878	8.4
493	Asthma	1,642	7.3
754.6	Valgus deformities of feet	967	4.3
717.8	Other internal derangement of knee	865	3.9
401	Essential hypertension	675	3.0
734	Pes planus (acquired)	647	2.9
306.2	Cardiovascular malfunction arising from mental factors	478	2.1
P81	Repair and plastic operation on joint structures	372	1.7
785	Symptoms involving cardiovascular system	332	1.5
	Total with nonmissing diagnoses 1–3	22,535*	

*Note that sum is greater than total number of waivers granted in Army because first three diagnoses are treated as separate records. Of 22,535 nonmissing diagnoses 94.1% account for first diagnoses, 5.6% for second, and <0.01% for third. Note that more than 1,000 waiver records had a missing diagnosis.

Table 4.17 shows that the most common specific conditions for which a waiver was granted by the Navy/Marines were asthma, hearing loss, and orthopedic hardware. These three conditions accounted for approximately 22.5% of all medical conditions for which the Navy/Marines granted waivers.

TABLE 4.17. TOP 10 DoD CODES FOR WAIVERS GRANTED IN 1995–2000: NAVY, MARINES

DoD	Definition	Count	%
493	Asthma	2,122	10.2
389	Hearing loss	1,385	6.6
796	Miscellaneous conditions	1,194	5.7
733.99	Orthopedic hardware	1,168	5.6
P81	Knee ligament surgical (correction or symptomatic or unstable)	1,055	5.1
401	Hypertensive vascular disease	1,047	5.0
754.6	Pes planus congenital (symptomatic)	978	4.7
734	Pes planus acquired (symptomatic)	788	3.8
717.83	Anterior cruciate ligament injury (history of uncorrected)	752	3.6
367.1	Myopia	750	3.6
Total with nonmissing diagnoses 1–3		20,881*	

*Sum is greater than total number of waivers granted in Navy and Marines because first three diagnoses are treated as separate records. Of 20,881 nonmissing diagnoses 81% account for first diagnosis, 15% for second, and 3.4% for third.

Table 4.18 shows that the most common specific conditions for which a waiver was granted by the Air Force were myopia, problems of lower extremities, and repair of a cruciate ligament. These three conditions accounted for approximately 42% of all medical conditions for which the Air Force granted waivers.

TABLE 4.18. TOP 10 ICD9 CODES FOR WAIVERS GRANTED IN 1995–2000: AIR FORCE

ICD9	Definition	Count	%
367.1	Myopia	668	17.6
732.4	Juvenile osteochondrosis of lower extremity, excluding foot	592	15.6
P81.45	Repair of cruciate ligament	313	8.3
734.0	Pes planus (acquired)	267	7.0
314.0	Attention deficit disorder	158	4.2
296.2	Major depressive disorder, single episode	107	2.8
493.0	Asthma	107	2.8
622.1	Dysplasia of cervix	70	1.8
309.9	Prolonged depressive reaction	69	1.8
718.86	Instability of joint	63	1.7
Total with nonmissing diagnoses 1–3		3,792*	

*Sum is greater than total number of waivers granted in the Air Force because first three diagnoses are treated as separate records. Of 3,792 nonmissing diagnoses 94.6% account for first diagnosis, 5% for second, and 0.3% for third.

Hospitalizations

Tables 4.19–4.24 summarize numbers of hospitalizations and numbers of individuals hospitalized by demographic groups among enlisted personnel beginning duty during 1995–1999. Relative risks are used to compare the likelihood of hospitalization across

demographic groups. A baseline group is chosen for each comparison, and in most cases this is the largest group. One exception is AFQT, in which descending score groups are examined.

Compared with other services, Army enlistees are most likely to be hospitalized. Females and older recruits have a higher likelihood of hospitalization. Whites are less likely to be hospitalized than blacks but have higher hospitalization likelihood than other races. There is no overall significant difference in hospitalization likelihood by education level. Finally, there is a higher likelihood of hospitalization for recruits scoring in the lower percentile groups on the AFQT compared with those in the 93–99 percentile.

**TABLE 4.19. HOSPITAL ADMISSIONS WITHIN 1 YEAR OF ACCESSION FOR ENLISTED PERSONNEL
ACCESSED IN 1995–1999: SERVICE**

Service	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
Army	297,186	22,748	19,272	6.5	1.00	
Navy	205,544	9,734	8,707	4.2	0.65	0.64, 0.67
Marines	156,417	7,094	6,262	4.0	0.62	0.60, 0.63
Air Force	157,028	8,476	7,482	4.8	0.73	0.72, 0.75

**TABLE 4.20. HOSPITAL ADMISSIONS WITHIN 1 YEAR OF ACCESSION FOR ENLISTED PERSONNEL
ACCESSED IN 1995–1999: GENDER**

Gender	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
Male	671,066	34,383	30,269	4.5	1.00	
Female	144,834	13,457	11,441	7.9	1.75	1.72, 1.79

**TABLE 4.21. HOSPITAL ADMISSIONS WITHIN 1 YEAR OF ACCESSION FOR ENLISTED PERSONNEL
ACCESSED IN 1995–1999: AGE**

Age at time of accession	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
17–20 yr	558,226	30,882	27,136	4.9	1.00	
21–25 yr	210,007	13,606	11,720	5.6	1.15	1.12, 1.17
26–30 yr	38,152	2,713	2,255	5.9	1.22	1.17, 1.27
>30 yr	9,513	729	596	6.3	1.29	1.19, 1.39

**TABLE 4.22. HOSPITAL ADMISSIONS WITHIN 1 YEAR OF ACCESSION FOR ENLISTED PERSONNEL
ACCESSED IN 1995–1999: RACE**

Race	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
White	576,529	33,768	29,465	5.1	1.00	
Black	155,004	9,808	8,449	5.5	1.07	1.04, 1.09
Other	83,746	4,272	3,777	4.5	0.88	0.85, 0.91

**TABLE 4.23. HOSPITAL ADMISSIONS WITHIN 1 YEAR OF ACCESSION FOR ENLISTED PERSONNEL
ACCESSED IN 1995–1999: EDUCATION LEVEL**

Education level at time of accession	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
HS senior	24,639	1,415	1,218	4.9	0.96	0.91, 1.02
HS graduate	716,937	42,239	36,793	5.1	1.00	
Some college	25,804	1,571	1,322	5.1	1.00	0.95, 1.05
BS	12,389	704	597	4.8	0.92	0.85, 0.99
>BS	868	35	26	3.0		

**TABLE 4.24. HOSPITAL ADMISSIONS WITHIN 1 YEAR OF ACCESSION FOR ENLISTED PERSONNEL
ACCESSED IN 1995–1999: AFQT SCORE**

AFQT score	Enlisted accessions	Hospital admissions	Persons hospitalized			
			Count	%	Relative risk	95% CI
93–99	35,689	1,941	1,630	4.6	1.00	
65–92	287,775	16,569	14,554	5.1	1.11	1.05, 1.16
50–64	224,769	14,316	12,355	5.5	1.20	1.14, 1.27
31–49	238,127	14,107	12,190	5.1	1.12	1.07, 1.18
01–30	10,036	569	493	4.9	1.08	0.97, 1.19

Table 4.25 shows the most common medical categories of reasons for hospital admissions, as well as the numbers of admissions and individuals admitted for those conditions. Medical categories were as specified in ICD9. The category “neurotic and personality disorders” is clearly the most common category of hospitalization, particularly for hospitalizations occurring during the first year of service. Not surprisingly, “injuries” is the next most common, reflecting the physically demanding nature of early enlisted service.

TABLE 4.25. HOSPITAL ADMISSIONS AND PERSONS HOSPITALIZED WITHIN 1 AND 2 YEARS OF SERVICE BY MEDICAL CATEGORY FOR ENLISTED PERSONNEL ACCESSED IN 1995–1999

Medical category	Within 1 year of accession		Within 2 years of accession	
	Hospital admissions	Persons hospitalized	Hospital admissions	Persons hospitalized
Neurotic and personality disorders	10,935	9,325	15,332	12,510
Injuries and poisoning	5,922	5,298	10,960	9,386
Dysfunctions of oral cavity, salivary glands	2,241	2,152	3,366	3,144
Other psychoses	2,112	1,663	3,246	2,269
Acute respiratory infections	2,019	1,875	2,286	2,098
Symptoms (ICD codes 780–789)	1,903	1,571	3,005	2,320
Alcohol and drug dependence	1,900	1,518	3,725	2,870
Pneumonia and influenza	1,868	1,758	2,067	1,918
Complications of pregnancy, childbirth, and puerperium	1,732	1,434	13,838	11,066
Infections of skin and subcutaneous tissue	1,614	1,500	2,277	2,057
Other diseases caused by viruses and chlamydia	1,405	1,307	1,663	1,519
Other diseases of respiratory system	1,078	949	1,901	1,617
Hernia of abdominal cavity	1,053	1,006	1,502	1,392
Appendicitis	906	856	1,645	1,497
Noninfectious enteritis	904	805	1,279	1,079
Arthropathies and related disorders	823	721	2,437	2,039
Chronic obstructive pulmonary disease and allied conditions	769	690	904	789
Viral diseases accompanied by exanthem	690	667	817	780
Other diseases of urinary tract	633	539	1,103	889
Other bacterial diseases	579	543	634	591
Others	8,321	6,895	14,901	11,529
Total	48,052	41,723	88,888	73,359

EPTS Discharges

Tables 4.26–4.31 summarize discharges for EPTS conditions among individuals beginning active duty during 1995–1999 by demographic factors. (Note that year refers to time of accession—those accessed in 2000 were not included because there were no EPTS data for 2001, so tracking would be incomplete.) Relative risks are used to

compare likelihood of EPTS discharge between demographic groups. A baseline group is chosen for each comparison, and in most cases this is the largest group. One exception is AFQT, in which descending score groups are examined.

Table 4.26 indicates that the likelihood of an EPTS discharge is significantly higher among enlistees in the Navy than in the Army. Conversely, enlistees in the Marines and Air Force have significantly lower likelihood of EPTS discharge than those in the Army. Be cautious in drawing conclusions from Table 4.26 because data completeness varies across services. Services also differ regarding which discharges are classified as EPTS. Therefore differences observed between services may more reflect procedural and/or reporting differences than actual differences of discharge likelihood.

TABLE 4.26. PERCENTAGE OF ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1995–1999

	Total accessed	Discharged	Discharge percent	Relative risk	95% CI
Army	297,186	13,388	4.5	1.00	
Navy	205,544	12,127	5.9	1.31	1.28, 1.34
Marines	156,417	5,913	3.8	0.84	0.81, 0.86
Air Force	157,028	5,035	3.2	0.71	0.69, 0.73

Tables 4.27–4.31 indicate that female enlistees had a significantly higher likelihood of EPTS discharge than males; older enlistees had a significantly higher likelihood than those aged 17–20 years at time of accession; nonwhites had significantly lower likelihood than whites. There was a statistically significant trend of higher likelihood of EPTS discharge for lower AFQT score group.

TABLE 4.27. PERCENTAGE OF ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1995–1999: GENDER

Gender	Total accessed	Discharged	% discharged	Relative risk	95% CI
Male	671,066	27,803	4.1	1.00	
Female	144,834	8,658	6.0	1.44	1.41, 1.48

TABLE 4.28. PERCENTAGE OF ENLISTED ACCESSIONS ENDING IN EPTS DISCHARGE IN 1995–1999: AGE

Age at time of accession	Total accessed	Discharged	% discharged	Relative risk	95% CI
17–20 yr	558,226	24,432	4.4	1.00	
21–25 yr	210,007	9,764	4.6	1.06	1.04, 1.09
26–30 yr	38,152	1,821	4.8	1.09	1.04, 1.14
>30 yr	9,513	443	4.7	1.06	0.97, 1.17

**TABLE 4.29. PERCENTAGE OF ENLISTED ACCESSIONS ENDING
IN EPTS DISCHARGE IN 1995–1999: RACE**

Race	Total accessed	Discharged	% discharged	Relative risk	95% CI
White	576,529	27,935	4.8	1.00	
Black	155,004	5,806	3.7	0.77	0.75, 0.79
Other	83,746	2,713	3.2	0.67	0.64, 0.69

**TABLE 4.30. PERCENTAGE OF ENLISTED ACCESSIONS ENDING
IN EPTS DISCHARGE IN 1995–1999: EDUCATION LEVEL**

Education level at time of accession	Total accessed	Discharged	% discharged	Relative risk	95% CI
HS senior	24,639	1,298	5.3	1.14	1.08, 1.21
HS diploma	716,937	33,043	4.6	1.00	
Some college	25,804	761	2.9	0.64	0.60, 0.69
Bachelor's	12,389	378	3.1	0.66	0.60, 0.73
Graduate	868	28	3.2		

**TABLE 4.31. PERCENTAGE OF ENLISTED ACCESSIONS ENDING
IN EPTS DISCHARGE IN 1995–1999: AFQT CATEGORY**

Percentile score	Total accessed	Discharged	% discharged	Relative risk	95% CI
93–99	35,689	1,153	3.2	1.00	
65–92	287,775	11,782	4.1	1.27	1.19, 1.34
50–64	224,769	10,882	4.8	1.50	1.41, 1.59
31–49	238,127	12,017	5.0	1.56	1.47, 1.66
01–30	10,036	521	5.2	1.61	1.45, 1.78

Disability Discharges for Army and Air Force

Tables 4.32–4.37 summarize disability discharges within the first year of accession for Army and Air Force enlistees who accessed in 1995–1999. Navy and Marines are excluded because disability discharge data were unavailable. Relative risks are used to compare likelihood of disability discharge between demographic groups. A baseline group is chosen for each comparison, and in most cases this is the largest group. One exception is AFQT, in which descending score groups are examined.

Table 4.32 shows no significant difference in discharge likelihood for Army and Air Force. Tables 4.32–4.36 indicate that females and whites had a higher likelihood of disability discharge than their counterparts. Likelihood of disability discharge increased with age at time of accession. There was no significant difference in likelihood of disability discharge by AFQT score or education level.

TABLE 4.32. ARMY AND AIR FORCE ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1995–1999

Service	Total accessed	Discharged within 1 year of accession	% discharged	Relative risk	95% CI
Army	297,186	1,445	0.49	1.00	
Air Force	157,028	716	0.46	0.94	0.86, 1.03

TABLE 4.33. PERCENTAGE OF ARMY AND AIR FORCE ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1995–1999: GENDER

Gender	Total accessed	Discharged within 1 year of accession	% discharged	Relative risk	95% CI
Male	354,769	1,343	0.38	1.00	
Female	99,156	815	0.82	2.17	1.99, 2.37

TABLE 4.34. PERCENTAGE OF ARMY AND AIR FORCE ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1995–1999: AGE

Age at time of accession	Total accessed	Discharged within 1 year of accession	% discharged	Relative risk	95% CI
17–20 yr	296,402	1,288	0.43	1.00	
21–25 yr	126,931	676	0.53	1.23	1.12, 1.34
26–30 yr	24,700	157	0.64	1.46	1.24, 1.72
>30 yr	5,962	39	0.65	1.51	1.10, 2.06

TABLE 4.35. PERCENTAGE OF ARMY AND AIR FORCE ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1995–1999: RACE

Race	Total accessed	Discharged within 1 year of accession	% discharged	Relative risk	95% CI
White	316,168	1,617	0.51	1.00	
Black	94,280	381	0.40	0.79	0.71, 0.88
Other	43,241	161	0.37	0.73	0.62, 0.86

TABLE 4.36. PERCENTAGE OF ARMY AND AIR FORCE ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1995–1999: EDUCATION LEVEL

Education level at time of accession	Total accessed	Discharged within 1 year of accession	% discharged	Relative risk	95% CI
HS diploma	374,966	1,853	0.49	1.00	
HS senior	18,391	73	0.40	0.80	0.64, 1.01
Some college	23,843	131	0.55	1.11	0.93, 1.33
Bachelor's	9,041	33	0.37	0.72	0.52, 1.01
Graduate	726	2	0.28		

TABLE 4.37. PERCENTAGE OF ARMY AND AIR FORCE ENLISTED ACCESSIONS ENDING IN DISABILITY DISCHARGE WITHIN 1 YEAR OF SERVICE IN 1995–1999: AFQT SCORE

Percentile score	Total accessed	Discharged within 1 year of accession	% discharged	Relative risk	95% CI
93–99	19,906	82	0.41	1.00	
65–92	161,065	795	0.49	1.20	0.96, 1.50
50–64	131,723	683	0.52	1.26	1.00, 1.58
31–49	122,486	567	0.46	1.12	0.89, 1.42
01–30	7,354	28	0.38	0.92	0.60, 1.42

5. DoDMERB OFFICER PROGRAM APPLICANTS

In 2001, AMSARA received data from the DoD Medical Examination Review Board (DoDMERB) on applicants to the service academies, ROTC, and College Scholarship Branch (CSB) programs. (ROTC applicants are usually in high school, whereas CSB applicants are usually in college.) These programs provide scholarships for college education in exchange for commitment to serve as an officer for up to 7 years. Data are for all applicants to the officer education programs who had a medical examination reviewed by DoDMERB in anticipation of starting their academic studies in 1999 and 2000. Thus the examination may have occurred in a previous year.

DoDMERB schedules medical examinations for all interested applicants and reviews the results for medical and personnel disqualifying conditions (height and weight). DoDMERB applies the program-specific disqualifications or coding according to the needs of each officer program. AMSARA grouped DoDMERB disqualification codes by system (Table 5.1).

TABLE 5.1. AMSARA DESIGNATED CATEGORIES RELATED TO NUMBER OF DoDMERB CODES

Category	No. of codes
Abdominal and gastrointestinal system	6
Allergy	4
Blood and blood-forming tissue disease	9
Dental	6
Ears and hearing	7
Endocrine and metabolic diseases	2
Extremities	7
Eyes and vision	63
Genitourinary system	6
Head and neck	11
Heart and vascular system	15
Height, weight, and body build information	25
Kidney/urinary	9
Lungs and chest wall	9
Mouth, nose, pharynx, trachea, esophagus, and larynx	6
Psychoses, psychoneuroses, and personality disorders	4
Skin and cellular diseases	10
Spine, scapulae, ribs, and sacroiliac joints	9
Systemic diseases and miscellaneous conditions and defects	3
Tumors and malignant diseases	2
Venereal disease	1
General (administrative)	20
All codes	214

Approximately 60 codes (all under “General (administrative)” and most under “Eyes and vision”) do not represent disqualifying conditions that require a waiver. Instead they

serve as a mechanism for specific programs to have additional information about the candidate. For instance, the Air Force asks DoDMERB to code whether an applicant wears glasses. An Air Force applicant may be fully qualified for one program, coded for poor visual acuity (receive a disqualification code that is not disqualifying) for another program, and perhaps be disqualified (for height or weight) by another program. Those subjects found to have a permanent disqualifying condition may apply to the program of interest for a waiver.

Applications by Program

There were 18,267 applicants in 1999 and 20,252 in 2000 for all programs. Many applicants apply to more than one program and may be qualified or disqualified depending on the program. Table 5.2 shows the number of applicants to each program with the percentage of applicants who had at least one medical disqualification code. Codes identified as not truly disqualifying were excluded. Codes related to personnel standards that vary among services were also excluded (e.g., height and weight).

TABLE 5.2. NUMBER OF APPLICANTS AND PERCENT MEDICALLY DISQUALIFIED IN 1999–2000

Program	1999			2000		
	Applicants	DQ	% DQ	Applicants	DQ	% DQ
Air Force Academy	4,247	989	23	4,487	986	22
Coast Guard Academy	1,125	187	17	1,235	217	18
Merchant Marine Academy	1,380	269	19	1,288	282	22
Military Academy	4,237	954	23	4,463	916	21
Naval Academy	4,769	951	20	5,851	1,206	21
Air Force ROTC/CSB	2,741	716	26	3,434	826	24
Army ROTC	3,810	756	20	3,813	623	16
Marine ROTC	324	70	22	270	52	19
Navy ROTC/CSB	2,362	497	21	1,926	371	19
Army CSB	3,582	785	22	4,047	690	17
Total	28,577*	NA	NA	30,814†	NA	NA

* Represents 18,267 applicants.

† Represents 20,252 applicants.

Medical disqualification rates were approximately 20% across all programs. Applicants and their disqualifications to various officer programs should not be directly compared because they are processed and coded differently according to the program to which they are applying. For instance, ROTC first accepts the applicant and then requests a medical examination, whereas military academies require a medical examination before consideration.

Disqualifications by Program

Tables 5.3–5.12 show the top 10 conditions of true medical disqualifications for each program. Individuals are counted once for each medical disqualification, resulting in multiple counts of individuals with more than one disqualifying condition.

**TABLE 5.3. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO AIR FORCE ACADEMY:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
033	History of asthma	48	139	187
088	Distant visual acuity not correctable to 20/20 in each eye	98	85	183
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	79	59	138
163	Substandard near point of convergence	64	74	138
302	Astigmatism > ± 2.00 diopters	55	79	134
003	Refractive error in excess of flying standards	68	62	130
014	Anisometropia > 2.50 diopters	52	72	124
018	History of anterior or posterior cruciate ligament	54	35	89
095	Miscellaneous—extremities	52	29	81
028	Substandard color vision	28	43	71

**TABLE 5.4. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO COAST GUARD ACADEMY:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
033	History of asthma	5	41	46
216	Unaided distant visual acuity worse than 20/400	17	27	44
060	Refractive error > ± 6.00 diopters	22	14	36
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	11	15	26
095	Miscellaneous—extremities	11	10	21
148	Retained orthopedic fixation device	10	11	21
041	Unspecified respiratory condition relieved with bronchodilator	18	2	20
028	Substandard color vision	6	12	18
018	History of anterior or posterior cruciate ligament	8	9	17
088	Distant visual acuity not correctable to 20/20 in each eye	5	11	16

**TABLE 5.5. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO MERCHANT MARINE ACADEMY:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
060	Refractive error > ± 6.00 diopters	26	36	62
033	History of asthma	13	44	57
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	27	30	57
216	Unaided distant visual acuity worse than 20/400	32	23	55
018	History of anterior or posterior cruciate ligament	21	12	33
088	Distant visual acuity not correctable to 20/20 in each eye	7	21	28
095	Miscellaneous—extremities	14	13	27
041	Unspecified respiratory condition relieved with bronchodilator	22	3	25
028	Substandard color vision	10	14	24
148	Retained orthopedic fixation device	16	6	22

**TABLE 5.6. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO U.S. MILITARY ACADEMY:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
033	History of asthma	46	169	215
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	99	80	179
103	Refractive error > -6.75 diopters (spherical equivalent)	59	95	154
095	Miscellaneous—extremities	69	50	119
088	Distant visual acuity not correctable to 20/20 in each eye	44	59	103
041	Unspecified respiratory condition relieved with bronchodilator	85	7	92
148	Retained orthopedic fixation device	44	38	82
018	History of anterior or posterior cruciate ligament	40	41	81
119	Miscellaneous—mouth, nose, pharynx, trachea, esophagus, larynx	27	48	75
039	Asthma or asthma symptoms requiring medication	49	21	70

**TABLE 5.7. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO U.S. NAVAL ACADEMY:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
060	Refractive error > ± 6.00 diopters	141	224	365
033	History of asthma	78	230	308
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	113	125	238
095	Miscellaneous—extremities	55	53	108
018	History of anterior or posterior cruciate ligament	56	42	98
119	Miscellaneous—mouth, nose, pharynx, trachea, esophagus, larynx	31	55	86
041	Unspecified respiratory condition relieved with bronchodilator	77	6	83
028	Substandard color vision	17	65	82
148	Retained orthopedic fixation device	45	35	80
039	Asthma or asthma symptoms requiring medication	51	21	72

**TABLE 5.8. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO AIR FORCE ROTC/CSB:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
088	Distant visual acuity not correctable to 20/20 in each eye	47	81	128
033	History of asthma	44	83	127
163	Substandard near point of convergence	51	56	107
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	64	41	105
302	Astigmatism > ± 2.00 diopters	45	48	93
048	Heterotropia/phoria exceeding standard for rated OPS	3	87	90
014	Anisometropia > 2.50 diopters	32	41	73
028	Substandard color vision	13	60	73
003	Refractive error in excess of flying standards	51	10	61
039	Asthma or asthma symptoms requiring medication	53	0	53

**TABLE 5.9. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO ARMY ROTC:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999-2000**

Code	Condition	1999	2000	Total
033	History of asthma	52	138	190
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	112	74	186
103	Refractive error > -6.75 diopters (spherical equivalent)	71	96	167
301	Corrected visual acuity exceeds standards	34	42	76
095	Miscellaneous—extremities	37	31	68
119	Miscellaneous—mouth, nose, pharynx, trachea, esophagus, larynx	27	27	54
018	History of anterior or posterior cruciate ligament	44	6	50
120	Miscellaneous—neurological disorders	28	17	45
039	Asthma or asthma symptoms requiring medication	41	3	44
148	Retained orthopedic fixation device	36	6	42

**TABLE 5.10. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO MARINE ROTC:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999-2000**

Code	Condition	1999	2000	Total
060	Refractive error > ± 6.00 diopters	18	17	35
033	History of asthma	7	9	16
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	7	3	10
268	Standing height <66 inches confirmed	9	1	10
039	Asthma or asthma symptoms requiring medication	8	0	8
088	Distant visual acuity not correctable to 20/20 in each eye	2	5	7
124	Miscellaneous—skin and cellular tissues	4	2	6
134	Miscellaneous—systemic diseases and misc conditions	4	2	6
095	Miscellaneous—extremities	3	2	5
148	Retained orthopedic fixation device	4	1	5

**TABLE 5.11. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO NAVY ROTC/CSB:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
060	Refractive error > ± 6.00 diopters	90	90	180
033	History of asthma	61	70	131
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	61	27	88
088	Distant visual acuity not correctable to 20/20 in each eye	18	31	49
119	Miscellaneous—mouth, nose, pharynx, trachea, esophagus, larynx	20	15	35
039	Asthma or asthma symptoms requiring medication	32	1	33
095	Miscellaneous—extremities	23	9	32
018	History of anterior or posterior cruciate ligament	24	7	31
148	Retained orthopedic fixation device	19	10	29
098	Miscellaneous—eyes and vision	15	8	23

**TABLE 5.12. MEDICAL DISQUALIFICATIONS OF APPLICANTS TO ARMY CSB:
INDIVIDUALS EXAMINED DURING CYCLE YEARS 1999–2000**

Code	Condition	1999	2000	Total
121	Miscellaneous—psychoses, psychoneuroses, and personality disorders	195	116	311
103	Refractive error > -6.75 diopters (spherical equivalent)	65	134	199
033	History of asthma	39	59	98
301	Corrected visual acuity exceeds standards	28	35	63
148	Retained orthopedic fixation device	33	22	55
018	History of anterior or posterior cruciate ligament	40	14	54
099	Miscellaneous—genitourinary system	25	23	48
095	Miscellaneous—extremities	30	16	46
314	Physician's evaluation—body fat exceeding standards	32	11	43
119	Miscellaneous—mouth, nose, pharynx, trachea, esophagus, larynx	18	22	40

Summary

Roughly 20% of applicants to all officer programs are found to have at least one medically disqualifying condition. In general, vision deficits and history of asthma were the most common disqualifying conditions across all programs.

AMSARA is working with officials at the different officer education programs to collect data on those individuals who enroll in the programs. This information, coupled with data on program completion and commissioning outcomes, will allow further study of the impact of accession standards on officer admissions.

6. CASE SERIES REVIEWS

FOR AMSWG 2001 QUARTERLY MEETINGS

Beginning at the first quarterly meeting of the Accession Medical Standards Working Group (AMSWG) in 2001, AMSARA provided descriptive data for all EPTS discharges by specialty grouping in preparation for the next revision of DoD Instruction 6130.4, due for completion in 2004. Systems reviewed are outlined below by the month of the AMSWG meeting. Conditions listed in boldface are detailed in the following case series reviews. After each condition is the number of EPTS discharges for that condition, followed by the percentage of all discharges for the system under consideration.

March 2001 AMSWG Quarterly Meeting

Classification E1.1. Abdominal organs and gastrointestinal system

694 EPTS discharges in 1997–1999

1. **Inguinal hernia**: 139 discharges (20%)
2. **Hepatitis**: 115 discharges (16.5%)

Classification E1.3. Dental

224 EPTS discharges in 1997–1999

1. Insufficient teeth: 114 discharges (50.9%)
2. **Temporomandibular disorders**: 103 discharges (46.0%)

June 2001 AMSWG Quarterly Meeting

Classification E1.6. Endocrine and metabolic disorders

135 EPTS discharges in 1997–1999

1. **Thyroid disorders**: 75 discharges (55.6%)
2. **Diabetes mellitus**: 39 discharges (28.9%)

December 2001 AMSWG Quarterly Meeting

Classification E1.12. Female genitalia

1,035 EPTS discharges in 1997–1999

1. Pregnancy: 326 discharges (31.5%)
2. **Abnormal Pap smear**: 98 discharges (9.5%)

Classification E1.14. Urinary system

Functional enuresis included at the request of AMSWG.

691 EPTS discharges in 1997–1999

1. **Enuresis**: 332 discharges (48.0%)
2. **Varicocele**: 91 discharges (13.2%)

Only personnel accessioned to active duty service are included in the following case series reviews. All reviews used EPTS documents (SF600, SF502, DA3947, or DA4707 depending on service and training installation) and MEPS physical examination forms

(SF88 and SF93) obtained from MEPCOM. DMDC, PASBA, and service waiver authorities provided additional data.

Summary

Case series reviews were limited by small size, potential for under-reporting, and differences among services in policies for screening and outprocessing. In general, those disorders that could be known only by history (e.g., enuresis) were often concealed by the applicant at the MEPS physical. The EPTS discharges reviewed were rarely associated with an apparent failure at MEPS to correctly identify a disqualifying disorder.

Some individuals discharged with surgically correctable conditions (e.g., inguinal hernias and low-grade squamous intraepithelial lesion) appear to be refusing treatment, suggesting that others identified with these conditions are accepting treatment and remaining on active duty.

Complete reporting of all EPTS discharges with documentation of the clinical findings and whether treatment was offered (and refused) would clarify whether these EPTS discharges can be further reduced.

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR INGUINAL HERNIA IN 1998-1999

Background

Applicants with inguinal hernias during the MEPS exam cannot enlist until they supply documentation of surgical repair and are asymptomatic for at least 60 days postoperation. An inguinal hernia discovered during the initial 180 days of service may result in an EPTS discharge.

Most inguinal hernias occur among males and are repaired with one surgery [1]. Although the true incidence of inguinal hernias is unknown, the frequency of this condition can be estimated from national data for surgical repairs: approximately 3 per 1,000 [2].

This crude estimate appears to be justified by DoD hospitalization data. Overall rate of hospitalization for inguinal hernias was close to 3 per 1,000 male servicemembers until 1997 when hospitalizations dramatically declined because of the trend toward outpatient surgeries [3]. Historically, females in the military were hospitalized for inguinal hernia repair at one-tenth the rate noted among males.

Methods

All EPTS discharges for inguinal hernias or related post surgical pain received from MEPCOM during 1998 and 1999 were studied. Records from the MEPS physical (SF88 and SF93) and all records associated with the EPTS discharge (SF 600, SF502, DA4707, or DA3947 depending on service) were reviewed.

Results

During these 2 years, 81 recruits were discharged because of problems associated with inguinal hernias: 73 (90%) had inguinal hernias requiring repair and 8 (10%) had chronic inguinal pain after surgery.

The average age of those discharged was 19.9 years (range 17-31 years). Only 4.5% (4/81) were older than 25 years; this is representative of the age distribution of the general recruit population. One female was included in the series. The paucity of females is expected because <5% of inguinal hernias occur among females in the U.S. population, and females represent <20% of the new recruit population. Cases were predominately white (69%), followed by black (16%), other/unknown (10%), Asian (4%), and American Indian (1%). The racial distribution closely approximates the general recruit population.

Twenty-three cases (28%) admitted to having an inguinal hernia or symptoms before reporting for service. Forty-five (55%) records clearly indicate that the patient experienced first symptoms after arriving at Initial Entry Training (IET). Thirteen records (16%) did not provide sufficient information to determine when symptoms began. In 47 of 81 cases (58%), the records allowed calculation of time spent on active duty until patient's first clinic visit for symptoms. Median length of active service was 7 days

(range 0–98 days). Of those eight cases presenting after 30 days on active service, 75% were newly discovered.

Inguinal hernias occurred on the right 53% of the time (39 of 73 requiring repair), compared with 41% on the left (30 of 73 requiring repair). One case did not document which side was involved, and three bilateral hernias were documented. Ten of 73 inguinal hernias requiring repair (13.7%) were recurrences. Anatomic variation and recurrence of hernias seen in this recruit population are similar to those of the medical literature [1].

The practice of offering surgical repair at the various IET sites was examined. Forty percent (29 of 73 requiring repair) of the records document that recruits were offered surgical repair. All but one declined. The remaining records do not indicate whether repair was offered. It is evident by the distribution among Initial Entry Training locations (Table 6.1) that all services offer repair to some recruits with inguinal hernias. The variation observed among sites may reflect variable clinical charting rather than true service or installation differences.

TABLE 6.1. DOCUMENTED OFFERS OF SURGICAL REPAIR AMONG THOSE RECEIVING EPTS DISCHARGE FOR CLINICALLY EVIDENT INGUINAL HERNIAS BY INITIAL ENTRY TRAINING LOCATION IN 1998–1999

Location	Repair offered	Total cases with current hernia by exam	% offered repair
Army			
Fort Leonard Wood	3	12	25
Fort Sill	1	5	20
Fort Knox	0	1	0
Marines			
Parris Island	6	8	75
San Diego	8	18	44
Navy			
Great Lakes	8	11	72
Coast Guard			
Cape May	1	2	50
Air Force			
Lackland AFB	2	16	3
Total	29	73	40

After three Coast Guard cases were excluded (because accession numbers were inaccurate), the crude discharge rate for inguinal hernias or inguinal pain was nearly 3 per 10,000 male accessions per year (78/334,092 males accessed from 1998 through 1999), approximately one-tenth that expected in an unscreened population.

Discussion

EPTS discharge for inguinal hernia is rare. At least 55% of those discharged had no symptoms (by self-report) before entry, which represents a larger percentage of apparent new diagnoses than most EPTS conditions (generally <25%). This likely reflects the difficulty in identifying small hernias on physical exam at MEPS. The stress of physical

training during basic training may increase the size of the hernia sufficiently to make it symptomatic.

The low discharge rate and the fact that at least 40% of those discharged were offered repair suggest that many recruits with inguinal hernias undergo surgical repair and stay on active duty. How many recruits with inguinal hernias accept an offer of surgery and stay in the military cannot be determined, but the offer of repair is a reasonable policy for an easily correctable condition.

Acknowledgments

AMSARA thanks 2LT William Porter.

References

1. Welsh DR, Alexander MA. The Shouldice repair. *Surg Clin North Am* 1993;73:451.
2. Rutkow IM. Epidemiologic, economic, and sociologic aspects of hernia surgery in the United States in the 1990s. *Surg Clin North Am* 1998;78:941.
3. Army Medical Surveillance Activity. Available at <http://amsa.army.mil>. Accessed 2 March 2002.

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR HEPATITIS IN 1998–1999

Background

Any applicant with a history of "Hepatitis in the preceding 6 months or persistence of symptoms after 6 months or objective evidence of impairment of liver function, chronic hepatitis, or hepatitis B carriers" is excluded from military service by DoD Directive. Since DoD Directive 6130.3 does not specify type of hepatitis, recruits may be discharged for a variety of differing causes of hepatitis. The most likely cause of chronic hepatitis in the United States is hepatitis C (estimated 3.9 million infected), followed by chronic carriers of hepatitis B (1 million).

Recruits born outside the United States or whose parents were born in Asia or Africa are at greater risk of carrying hepatitis B. Recruits may also have a history that puts them at high risk for hepatitis B or C, such as exposure to contaminated needles (tattoos, occupational blood exposure, intravenous drug use), multiple sex partners, or history of sexually transmitted diseases.

Unfortunately hepatitis B and C infection is often asymptomatic yet can later damage the liver. Current screening at MEPS consists only of questioning about a history of hepatitis. Because many applicants with hepatitis B or C are probably unaware of their disease, this review was undertaken in part to determine how hepatitis is identified during recruit training.

Methods

Enlisted recruits who received an EPTS discharge for hepatitis that was reported to MEPCOM during 1998–1999 are described. Viral hepatitis (DoD Directive 6130.3 code 070) and unspecified hepatitis (code 570) are included. Elevations of liver function test and types of serology at time of diagnosis are noted.

Results

From 1998 through 1999, 86 recruits received EPTS discharges for hepatitis. Mean age (20.6 years (range 17–30 years)) was similar to that of the general recruit population. Gender was also representative of the recruit population, with 70 (81.4%) being male. Asians were over-represented, as were recruits born outside the United States. Service distribution was not representative, with most cases coming from the Navy (Table 6.2).

TABLE 6.2. DEMOGRAPHICS OF ENLISTED RECRUITS GIVEN EPTS DISCHARGE FOR HEPATITIS IN 1998–1999

	No.	% cases	% recruit population
Age			
<18 yr	4	4.7	22.6
18–24 yr	73	84.9	69.0
>25 yr	9	10.5	8.4
Race			
Asian	25	29.1	3.4
Black	24	27.9	19.3
Hispanic	6	7.0	10.3
American Indian	2	2.3	1.7
White	27	31.4	63.9
Other	2	2.3	1.4
Gender			
Male	70	81.4	81.7
Female	16	18.6	18.3
Birthplace			
Foreign	33	38.4	12.7
United States	53	61.6	87.3
Service			
Army	13	15.1	38.0
Navy	29	33.7	25.3
Air Force	28	32.6	18.2
Marines	14	16.3	18.5
Coast Guard	2	2.3	*

* Coast Guard excluded because of incomplete gain data from DMDC.

Fifty-six cases (65%) were identified through routine screening procedures: 29 from blood donation, four through a work-up for sexually transmitted diseases, one during needlestick evaluation, 21 from routine screening for viral hepatitis conducted in the Navy (16) and Marines (5), and three from another apparent routine screening procedure. Six cases (7%) reported history of hepatitis during medical or dental inprocessing. Only seven cases were detected after clinical presentation that included hepatitis in the differential diagnosis: one (1.2%) rash, one (1.2%) systemic symptoms, one (1.2%) abdominal pain, one (1.2%) epistaxis, and three (3.5%) jaundice. The remaining 15 records (17.4%) did not state how the cases were discovered.

Serologic testing results were documented in 80 (93.0%) cases: 59% (47/80) were classified as infectious for hepatitis B, 17% (8/47) highly infectious (HBeAg+); 49% (39/80) were positive for hepatitis C, 22 by RIBA, 7 by hepatitis C virus RNA, and 10 with type of test not indicated. Autoimmune hepatitis was diagnosed by positive antinuclear antibody and anti-smooth muscle antibody in two recruits.

A positive blood donation screen accounted for 19 of 47 hepatitis B (40.4%) and 10 of 39 hepatitis C (25.6%) cases. Of the two autoimmune hepatitis cases, one knew of the condition and abruptly discontinued steroid therapy immediately before entering service and concealed the diagnosis at the MEPS evaluation.

Aminotransferase enzyme levels (aspartate aminotransferase and alanine aminotransferase) were available for 58 (67.4%) of the cases. Aspartate aminotransferase and alanine aminotransferase were elevated in 21 (24.4%) cases. It appears from the record review that persons with acute hepatitis, a positive serological test, or liver dysfunction as documented by liver enzymes were initiated for separation at entry.

Reported risk factors for hepatitis B and C were reviewed. Birth in another country was the most prevalent factor at 39% (33/84). Risk factors were not mutually exclusive (Table 6.3).

TABLE 6.3. RISK FACTORS FOR ENLISTED RECRUITS GIVEN EPTS DISCHARGE FOR HEPATITIS IN 1998-1999

Risk factor	No.	%
STD/multiple partners	7	8.1
History of drug abuse	3	3.5
History of alcohol abuse	9	10.5
Blood transfusion	3	3.5
Foreign travel	9	10.5
Family contacts with hepatitis	12	14.0
Tattoos	24	27.9
Foreign born	33	38.4

A MEPS in the southwestern United States reported the highest number of hepatitis cases. Of the 29 (33.7%) receiving an EPTS discharged from this single MEPS, 14 (48.3%) were from California and 13 (44.8%) were from Texas.

Discussion

Hepatitis is a relatively uncommon cause for EPTS discharge, with the majority related to a viral etiology. Half of those discharged were from the Navy & Marines, services that routinely screen their recruit population for hepatitis B. Blood donation was the primary means individuals learned they had serologic evidence of hepatitis in the Air Force and Army. Hepatitis was rarely clinically evident with only seven (8.3%) cases identified as a result of a clinic visit.

A decision regarding a policy of universal hepatitis serology on all recruits would require a cost-effectiveness analysis, but the small number of viral hepatitis EPTS discharges suggests that universal testing would not be cost-effective.

Acknowledgments

AMSARA thanks 2LT Bascom Bradshaw.

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR TEMPOROMANDIBULAR DISORDERS IN 1997–2000

Background

DoD Directive 6130.3 groups myofascial pain dysfunction and temporomandibular disorders (TMD) under classification E1.3.1, “diseases of the jaw,” as cause for disqualification. The reported prevalence of TMD differs among studies, probably because standardized definitions are lacking. The estimated incidence of TMD ranges from 6% of the general U.S. population [1] to 12% of enrollees in a large Seattle health maintenance organization [2]. Surveys place the prevalence of TMD at about 20–50% [3]. The most common cause of TMD is trauma. Other causes are bruxism, malocclusion, orthodontics, ligament laxity, arthritis, stress, and systemic diseases. Patients may also have a combination of muscle and joint problems, so diagnosing TMD can be complex.

Methods

EPTS discharges reported to MEPCOM that had primary, secondary, or tertiary diagnosis of TMD (524.6) and/or myofascial pain dysfunction not easily corrected were reviewed. Cases were limited to active duty Army, Air Force, Navy, Marine, and Coast Guard enlisted recruits who received EPTS discharges because of TMD in calendar years 1997–2000.

MEPCOM provided data on demographic, medical, and administrative elements for recruit applicants in each service. MEPCOM collects records on EPTS discharges, and these records include medical category and judgment regarding why each person was not initially rejected for service on the basis of that preexisting condition (concealment, lack of awareness, waiver, etc). Ninety-six records were available for review.

Results

142 electronic records of recruits who were discharged for temporomandibular joint dysfunction were analyzed from 1997–2000. Distribution of EPTS cases by services compared with the eligible EPTS population is shown in Table 6.4. The Air Force is over-represented.

TABLE 6.4. DEMOGRAPHICS OF RECRUITS RECEIVING EPTS DISCHARGE FOR TMD 1997-2000 COMPARED WITH ALL ACCESSIONS IN 1997-1999

Characteristic	EPTS cases (n = 142)	% EPTS	% all accessions (n = 525,609)
Age			
17-21 yr	108	76.1	78.9
22-25 yr	25	17.6	15.2
>25 yr	1	0.7	5.9
Missing†	8	5.6	
Gender			
Male	92	64.6	81.8
Female	46	32.4	18.2
Missing†	4	2.8	
Race			
White	110	77.5	69.5
Black	18	12.7	19.1
Other	8	5.6	11.4
Missing†	6	4.2	
Service			
Air Force	38	26.8	19.6
Army	33	23.2	34.9
Marines	7	4.9	19.5
Navy	25	17.6	26.0
Coast Guard	39	27.5	*

* Coast Guard accessions unavailable from DMDC gain file.

† Condition for EPTS discharge indicated but specifics (e.g., age, gender, race) not recorded.

Recruits discharged for TMD were not significantly different in age from other recruits. Females were over-represented among TMD cases (odds ratio 2.25, 95% CI 1.55, 3.25). Nonwhites (blacks and others) were under-represented compared with whites (odds ratio 0.54, 95% CI 0.34, 0.84).

Of 142 total cases, 126 (89%) had as the primary diagnosis diseases of the jaw or associated tissues, including TMD (ICD9 code 524.6) and/or myofascial pain, cysts, periodontitis, and other unknown diseases of the jaw. Thirteen (9%) had excessive caries (ICD9 code 521) as the primary diagnosis. Two (>1%) had headaches as primary diagnosis and temporomandibular joint dysfunction as secondary or tertiary diagnosis. One (<1%) had fibromyalgia (ICD9 code 728) as primary diagnosis and chronic myofascial pain as secondary diagnosis.

Approximately 3.0 per 10,000 accessions per year for all services received an EPTS separation for TMD. The relative burden of TMD compared with all EPTS discharges is low: 0.61% of all EPTS discharges are for TMD.

Of the 142 cases, 52 (37%) reported being unaware of their condition before enlistment. Twelve (8%) had a condition not felt to be disqualifying based on clinical judgment during initial examination. One (<1%) should have been detected and disqualified at the

MEPS. Fifty-six recruits (39%) concealed their condition. Twenty-one records (15%) had insufficient data from which to determine an EPTS code.

Of the 96 records reviewed, 22 (23%) had documentation of treatment as outpatients with nonsteroidal antiinflammatory drugs alone or in combination with diazepam. Ketorolac and acetaminophen were occasionally used. Six recruits were hospitalized for pain management and treated in 2000, only one of these recruits had been given a waiver for TMD.

Discussion

TMD caused <0.5% of the total yearly EPTS discharges. If the prevalence of TMD is truly 20–50%, then perhaps many people with TMD are entering and serving in the military without significant problems.

The variability and severity of TMD symptoms makes it difficult to classify as a single condition. Mild TMD symptoms, such as jaw noises or occasional headaches, may not interfere with an individual's ability to perform. However, more serious symptoms, such as jaw locking or pain that inhibits functioning, potentially require aggressive treatment not compatible with service.

There was evidence in this review that many recruits with TMD are offered treatment and are discharged after failure of their symptoms to resolve. Screening at MEPS will continue to be a challenge relying on the applicants disclosure of their symptoms.

Acknowledgments

AMSARA thanks 2LT Charmaine Kaula.

References

1. Lipton JA, Ship JA, Larbach-Robinson D. Estimated prevalence and distribution of reported orofacial pain in the United States. *J Am Dent Assoc* 1993;124:115–121.
2. Von Korff M, Wagner EH, Dworkin SF, et al. Chronic pain and use of ambulatory health care. *Psychosom Med* 1991;53:61–79.
3. Dale R. TMD: it's our responsibility. *J Gen Orthodon* 1999;10:15–20.

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR THYROID DISORDERS IN 1997–1999

Background

Incidence of thyroid disease is difficult to estimate in part because of high rates of subclinical disease. A study conducted in Colorado estimated that 3–4% of males in the 18- to 34-year age group had elevated thyroid-stimulating hormone compared with 4–5% of females [1]. Despite apparent high levels of subclinical disease, routine screening is not warranted for asymptomatic individuals younger than age 50 [2]. Applicants with thyroid disorders are disqualified from enlisting.

Methods

A retrospective descriptive analysis was conducted for all recruits receiving an EPTS discharge for functional thyroid disorders reported to MEPCOM from 1997 through 1999. Thyroid conditions that result in discharge include goiter, hypothyroidism (uncontrolled by medication), cretinism, hyperthyroidism, and thyroiditis (ICD9 codes 240, 244, 243, 242, and 245, respectively). All available EPTS records were reviewed to verify computer data entry and recruit awareness of disorder and to describe presenting symptoms. Records from the initial MEPS physical examination were also reviewed for past history of thyroid disease.

All individuals disqualified at MEPS with a history of any of these disorders who subsequently received a waiver and entered military service are also described. Hospitalizations, EPTS discharges, all-cause attrition, and disability are described for those entering active duty with a waiver.

Results

From 1997 through 1999, 78 EPTS separations were for functional thyroid disorders: 65 (83%) for hyperthyroidism and 13 (17%) for hypothyroidism. Thyroid disease was the primary diagnosis in 70 cases (61 hyperthyroid, 9 hypothyroid), secondary in six cases (3 hyperthyroid, 3 hypothyroid), and tertiary in two cases (both hypothyroid). Eleven hyperthyroid cases were classified as Grave's disease. Two hypothyroid cases were further classified as goiter.

Females were 7.7 times (95% CI 4.54, 13.15) more likely to be discharged for hyperthyroidism (Table 6.5). Females were also more likely to be discharged for hypothyroidism (odds ratio 2.8, 95% CI 0.81, 9.47). Gender difference for hypothyroidism was not statistically significant because the number of cases is small.

Fifty of the 78 (64%) EPTS records included age of recruit, which ranged from 17 to 34 years (mean 22.8), which is significantly older than the mean age of all recruits (19 years). Those older than 25 appear to be 5.6 times more likely to be discharged with hyperthyroid problems, but 28 records have no age recorded, so accurate conclusions cannot be drawn. Racial distribution was representative of the general recruit population.

TABLE 6.5. EPTS CASES CLASSIFIED AS HYPERTHYROIDISM OR HYPOTHYROIDISM COMPARED WITH ALL ACCESSIONS IN 1997–1999

Variable	Hyperthyroidism		Hypothyroidism		Total thyroid		Accessions	
	No.	%	No.	%	No.	%	No.	%
Year								
1997	18	27.7	4	30.8	22	28.2	147,287	30.9
1998	19	23.2	5	38.5	24	30.8	156,578	32.9
1999	28	43.1	4	30.8	32	41.0	172,291	36.2
Gender								
Male	24	36.9	8	61.5	32	41.0	389,723	81.9
Female	41	63.1	5	38.5	46	59.0	86,343	18.1
Age								
17–20	20	30.8	2	15.4	22	28.2	333,393	70.0
21–25	13	20.0	3	23.1	16	20.5	115,992	24.4
26–30	10	15.4	1	7.7	11	14.1	21,442	4.5
>30	1	1.5	0	0	1	1.3	5,286	1.1
Missing*	21	32.3	7	53.9	28	35.9	0	0
Race								
White	29	44.6	6	46.2	35	44.9	330,676	69.5
Black	15	23.1	1	7.7	16	20.5	90,880	19.1
Other	7	10.8	2	15.4	9	11.5	54,287	11.4
Missing*	14	21.5	4	30.8	18	23.1	313	0.1
Total	65	100	13	100	78	100	476,156	100

*Condition for EPTS discharge indicated but specifics (e.g., age, gender, race) not recorded.

Record review confirmed that over half of those discharged with thyroid disease were unaware of their condition. All classifications could not be confirmed because records were missing, but at least 18 recruits concealed their condition at MEPS. Two cases (2.6%) were classified as “waived for a history of thyroid disease” that was confirmed by the service-specific waiver authority datasets.

A subset of EPTS records (50 of 78) was used to assess symptoms of disease at the time of diagnosis: 44 were hyperthyroid and 6 were hypothyroid. Eleven cases with hyperthyroidism (25%) and two cases with hypothyroidism (30%) had no documented complaints attributable to thyroid disease and were discovered during work-ups for other complaints. Among those with specific symptoms (33 hyperthyroid and 4 hypothyroid), cardiac complaints including tachycardia and palpitations were the most common, occurring in more than 50% of recruits discharged for either hyperthyroidism or hypothyroidism. Other classic symptoms (e.g., fatigue, tremor, weight change, irritability, insomnia, and heat or cold intolerance) were reported in 12 cases (32.4%). The most common physical finding was an enlarged thyroid gland or nodule, occurring in 15 cases (48.6%), with exophthalmos in seven (18.9%).

The crude 3-year average EPTS discharge rate for all services was 13.6 per 100,000 accessions for hyperthyroidism and 2.7 per 100,000 accessions for hypothyroidism.

Over the 3 years, 24 waivers were granted by service-specific waiver authorities for a history of thyroid disease: 13 (54%) for hypothyroidism, five (21%) for thyroiditis (thyroid function unspecified), and six (25%) for hyperthyroidism. Recruits granted

waivers were followed from the time of induction through 1999. As of that date, 19 (79%) remained on active duty; three (12.5%) had been given an EPTS separation for conditions unrelated to thyroid disease; and two (8.5%) were separated for nonmedical reasons. No hospitalizations or disability discharges occurred from the waived thyroid condition. Overall the crude attrition rate of recruits receiving waivers for history of thyroid disease was no different from that of all recruits for that period (21.0% vs 21.9%).

Discussion

Thyroid disease appears not to be a significant cause of early discharge among recruits. The low burden of thyroid disease is expected in a carefully selected healthy population. Hyperthyroidism appears to be more common in recruits age 26 and older and was significantly more common among females. This finding is consistent with the published medical literature.

On average, eight waivers for history of thyroid conditions occur yearly. Although the numbers are small, this review provides evidence that recruits waived for history of thyroid conditions stay on active duty at the same rate as recruits entering without waivers.

The prevalence of thyroid disease among recruits cannot be estimated because these diseases are not routinely screened for and are often asymptomatic or minimally symptomatic. In this review, 25–30% of those receiving an EPTS discharge were reportedly asymptomatic.

Given the relatively low incidence of hypothyroidism in young adults, the ease and low cost of management, and the potential for normalization within weeks to months, it may be cost-effective to treat hypothyroidism in recruits during basic training.

Acknowledgments

AMSARA thanks 2LT David Saunders.

References

1. Canaris G, Manowitz N, Mayor G, Ridgway E. The Colorado thyroid disease prevalence study. *Arch Intern Med* 2000;160:526–534.
2. Tunbridge WM. Population screening for autoimmune thyroid disease. *Endocrinol Metab Clin North Am* 2000;29:239–253.

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR DIABETES MELLITUS IN 1997–1999

Background

Diabetes mellitus is recognized as a burgeoning public health problem worldwide and poses an increasing challenge to the military from recruiting to retention. The prevalence of Type 1 diabetes in the United States ranges from 500,000 to 1,000,000 people, with a peak incidence around the onset of puberty, which is just a few years before eligibility for military service [1]. Even greater concern for the recruiting effort is the increasing prevalence of type 2 diabetes among U.S. youth. The national trend for youth to be less active and more overweight will only contribute to the occurrence of diabetes.

The Centers for Disease Control and Prevention reported that the U.S. incidence rate of diabetes in persons younger than 44 years was 1.6 per 1,000 person-years in 1994 [2]. According to the DMSS the incidence of diabetes among military populations appears to be similar [3]. The presence of diabetes is disqualifying for accession into military service. This review addresses how frequently diabetes is concealed at MEPS and describes those receiving an EPTS discharge.

Methods

A descriptive analysis was performed for all EPTS discharges reported to MEPCOM for diabetes between 1997 and 1999. All forms of diabetes and its complications assigned ICD9 codes 250.0–250.9 as primary diagnosis were reviewed. Waiver data were examined from 1995 to 1997 to determine if any members of this study had their diagnosis of diabetes waived for entry into service. All hospitalizations among members of this study group are also described.

Results

Thirty-nine EPTS discharges were reported to MEPCOM for diabetes in 1997–1999, which represents approximately eight cases per 100,000 accessions. Type of diabetes was classified in 18 of the 39 EPTS records: nine type 1 and nine type 2. Type could not be determined in the remaining 21 cases.

Those discharged for diabetes ranged from 17 to 32 years (mean 23); 35% of all cases were older than 25, which is approximately 6.3 times more than the age distribution of the general recruit population older than 25 years. Distribution by gender was similar to the general recruit population (Table 6.6), but nonwhites appear to be twice as likely to be discharged with diabetes when compared with whites.

TABLE 6.6. DEMOGRAPHICS OF RECRUITS RECEIVING EPTS DISCHARGES FOR DIABETES COMPARED WITH ALL ACCESSIONS IN 1997-1999

Characteristic	EPTS cases (n = 39)	% EPTS	% all accessions (n = 525,609)
Age (years)			
17-20	9	45	70.0
21-25	4	20	24.4
26-30	6	30	4.5
>30	1	5	1.1
Missing†	19		
Gender			
Male	28	80	81.9
Female	7	20	18.1
Missing†	4		
Race			
White	8	40	69.5
Black	7	35	19.1
Other	5	25	11.4
Missing†	19		
Branch			
Air Force	0	0	19.6
Army	17	43.6	34.9
Marines	5	12.8	19.5
Navy	14	35.9	26.0
Coast Guard	3	7.70	*

* Coast Guard accessions unavailable from DMDC gain file.

† Condition for EPTS discharge indicated but specifics (e.g., age, gender, race) not recorded.

The apparent rate of discharge from the Army was 0.65 per 10,000 accessions per year compared with the Navy rate of 0.82 and the Marine rate of 0.38. Meaningful comparisons among the services are impossible because of the small numbers.

Twenty of 39 EPTS discharges had medical records available for review. Body mass index was calculated for these 20 recruits at the time of the MEPS physical; 65% (13/20) were either obese (9) or overweight (4). Only 6% of all accessions during this time would be classified as obese ($\geq 30 \text{ kg/m}^2$), and 31% would be classified as overweight (body mass index 25-29.9 kg/m^2).

Of the 20 recruits, seven (35%) were classified with blood pressure readings indicative of stage 1 hypertension, seven (35%) with high normal, two within normal, and only four within the optimal range during their MEPS physical.

Nine of 20 had a documented family history of diabetes, and three of these also reported a personal history of diabetes. Information concerning personal and family histories was not found in the records of 10 recruits (50%) in the study group. Only one with a medical record had a negative personal and family history of diabetes. Among the study group for whom EPTS records were available, five of the 20 individuals (25%) revealed during the

EPTS evaluation that they concealed prior knowledge of their condition at the MEPS station.

Fifteen of the 39 (38.5%) had been hospitalized before discharge. Five required hospitalization for nonspecific diabetic complications that ranged from slurred speech, confusion, and impaired physical performance to ketoacidosis. Four of the 15 hospitalized were type 1 diabetics, and two were admitted for life-threatening ketoacidosis. Mean length of time from entrance into basic training to hospitalization was 21 days, with a range of 2–64 days.

As of 1999, no waivers have been issued to active duty servicemembers with a diagnosis of diabetes.

Discussion

It is clearly undesirable to enlist diabetics into active duty service given the cost, complications, and limitations imposed by the disease. This group of diabetics appears to have the same risk factors as civilian diabetics because they were more likely than the general recruit population to be black, older, overweight, hypertensive, and have a family history of diabetes.

Many of these recruits were apparently unaware of their condition and therefore could not be identified by history alone at MEPS. Compared with most other causes of EPTS discharges (where up to 75% admit concealment) only five (25%) knowingly concealed their diabetes at MEPS. In the Navy, all recruits are screened for diabetes at basic training. Other services may want to consider the cost-effectiveness of such screening.

Acknowledgments

AMSARA thanks 2LT Daniel G. Wojtusiak.

References

1. Diabetes in children. American Diabetes Association. Available at [http://www.diabetes.org/main/application/commercewf?origin=*.jsp&event=link\(B4_3\)](http://www.diabetes.org/main/application/commercewf?origin=*.jsp&event=link(B4_3)). Accessed 2 March 2002.
2. Diabetes statistics. Available at <http://www.niddk.nih.gov/health/diabetes/pubs/dmstats/dmstats.htm>. Accessed 25 March 2002.
3. Campbell KE, et al. Incidence of diabetes mellitus among active duty servicemembers, U.S. Armed Forces, 1998. *Med Surveillance Monthly Rep* 1999;5:7–9.

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR ABNORMAL PAP SMEAR IN 1998–1999

Background

Pap smears are used to detect invasive cervical carcinoma (ICC) and its predecessor, cervical dysplasia. An abnormal Pap smear can also represent other entities such as infective and idiopathic inflammation, endometrial abnormalities, and changes attributable to pregnancy. Pap smear cytology is classified by the Bethesda system as normal atypical squamous cells of undetermined significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL), high-grade squamous intraepithelial lesion (HSIL, also known as carcinoma in situ), or carcinoma.

Abnormal Pap smear is defined by DoD Directive 6130.3 as follows: "Graded low-grade squamous intraepithelial lesion (LSIL) or higher severity; or any smear in which the descriptive terms carcinoma-in-situ, invasive cancer, condyloma acuminatum, human papilloma virus, or dysplasia are used" [1].

Methods

All EPTS records for abnormal Pap smear (ICD9 code 795.0) were examined for 1998–1999. EPTS cases included recruits from the Army, Navy, Air Force, Marines, and Coast Guard. Hard copies of these EPTS data files were used to provide category-specific variables and to aid descriptive analysis.

Seventeen waivers were granted for history of abnormal Pap smear in 1998–1999, but data for all 17 are unavailable or inadequate.

Results

EPTS Cases

In 1998–1999, 42 recruits received an EPTS discharge for abnormal Pap smear. Cases were classified by the cervical intraepithelial neoplasia (CIN) system as follows, with corresponding classification by the Bethesda system in parentheses:

ASCUS	2 (4.8%)
CIN I (LSIL)	22 (52.4%)
CIN II (HSIL)	7 (16.6%)
CIN III (HSIL)	9 (21.4%)
Missing	2 (4.8%)

Most EPTS cases were discharged with the primary diagnosis of cervical dysplasia. Three had primary diagnosis of genital condyloma, endometriosis but with probable dysplasia, and vulvar intraepithelial neoplasia.

EPTS cases had a distribution by race and service similar to that of all recruits. EPTS cases tended to be younger than all recruits, with 35.7% being 18 years or younger compared with 25.1% in all recruits (Table 6.7)

TABLE 6.7. DEMOGRAPHICS OF EPTS DISCHARGES FOR ABNORMAL PAP SMEAR COMPARED WITH ACTIVE DUTY FEMALE RECRUITS ACCESSED IN 1998–1999

Characteristic	EPTS cases	% EPTS	Active duty female recruits accessed*	% female recruits accessed
Service†				
Air Force	12	28.5	17,034	26.8
Army	14	33.3	25,347	39.9
Marines	3	7.2	4,789	7.6
Navy	10	23.8	16,314	25.7
Age				
≤18 yr	15	35.7	15,933	25.1
19–24 yr	25	59.5	41,378	65.2
25+ yr	1	2.4	6,138	9.7
Missing§	1	2.4		
Race				
White	24	57.1	37,803	59.6
Black	12	28.6	18,083	28.5
Other	4	9.5	7,516	11.9
Missing§	2	4.8		

* Excludes Coast Guard because accession data unavailable from DMDC.

† Excludes three Coast Guard EPTS cases for abnormal Pap smear in 1998–1999.

§ Condition for EPTS discharge indicated but specifics (e.g., age, gender, race) not recorded.

An abnormal Pap smear is generally asymptomatic, as were 28 of 42 cases (66.6%). For most symptomatic cases (13/42 (31.0%)), pelvic pain was the primary symptom. Genital warts, dysuria, and vaginal discharge were experienced by three recruits with no pelvic pain.

Twenty-five (59.5%) EPTS recruits were unaware of their condition; 13 (33.3%) recruits concealed history of a previous abnormal Pap smear. One (2.4%) recruit received a waiver for the abnormality (cervical dysplasia (ICD9 code 622.1)).

Six (14.3%) EPTS discharges were offered treatment, and five refused. The recruit with the primary diagnosis of genital condyloma was treated with trichloroacetic acid with little success before being discharged.

Table 6.8 describes the calculated 2-year average discharge rate for abnormal Pap smear per 10,000 accessions for DoD and by service. The overall DoD rate was 6.14 discharges per year per 10,000 accessions.

TABLE 6.8. EPTS DATA FOR ABNORMAL PAP SMEAR IN 1998–1999

	DoD	Army	Navy	Air Force	Marines
EPTS frequency	39	14	10	12	3
Female accessions	63,484	25,347	16,314	17,034	4,789
EPTS rate/10,000 accessions/yr	6.14	5.52	6.13	7.04	6.26

Service Policy Data

The services interpret and enact accession policy concerning abnormal Pap smear differently. The Army does not perform a Pap smear on any recruit during the first 6 months unless it is clinically justified. When an abnormal Pap smear is an incidental finding, the Army gives an EPTS discharge. Most accessions are asymptomatic and undiagnosed. The Army does not generally give waivers for abnormal Pap smear nor treat patients when the abnormal Pap smear is discovered within the first 6 months.

In contrast, all Navy recruits receive a Pap smear at inprocessing. The Navy also performs a colposcopy with biopsy when indicated. All recruits with a CIN I (cytological level or lower) are given a locally approved waiver and treated accordingly. If the waiver is for lesion higher than CIN I, it must be approved by the Naval Bureau of Medicine and Surgery. All recruits are treated according to their conditions and must refuse treatment to receive an EPTS discharge (personal communication, L. Roybal, April 2000). The Marines follow the guidelines of the Navy.

Air Force policy is distinct from that of the Army and Navy. The recruit clinic attempts to perform Pap smear on every recruit, but because of limited resources only a fraction of total accessions are tested. Patients with an LSIL or higher are given an EPTS discharge. Waivers are generally not given for abnormal Pap smear (personal communication, CPT Kimberly Bradley, April 2000).

The Coast Guard also screens all recruits but only discharges those with CIN II or higher; the rest are treated (personal communication, CAPT Mora Dollymore, April 2000). No recruits were discovered with such a lesion in 1998–1999.

Discussion

The low discharge rate of 6.14 per 10,000 female accessions for abnormal Pap smear is likely a result of the various policy differences among the services. The Army and Air Force do not routinely detect abnormal Pap smear because they do not routinely screen recruits. The Navy, Marines, and Coast Guard screen all recruits but actively treat those with low-grade lesions. Despite policy differences, all services have similar rates of EPTS discharge for abnormal Pap smear.

ASCUS, CIN I, condyloma, and herpes papilloma virus are treatable lesions that should not increase the risk of attrition. Many ASCUS and CIN I lesions—at least half of our EPTS population—regress without treatment and become cytologically normal. The only extra cost for these individuals is two to three follow-up Pap smears. The decision to treat these low-grade lesions appears sound.

Acknowledgments

AMSARA thanks 2LT David Schnabel.

References

1. Department of Defense. Physical Standards for Appointment, Enlistment, or Induction. Washington DC: Department of Defense, 1994 (DoD Directive 6130.3).

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR ENURESIS IN 1997–2000

Introduction

Wetting disorders are considered an unavoidable nuisance of childhood but are recognized as pathologic as the child ages and lags behind his or her peers in voiding control. Enuresis is commonly associated with incontinence at night, but it is medically important to distinguish between nocturnal and diurnal wetting. Although they can coexist, diurnal enuresis suggests organic urologic or systemic disease, whereas nocturnal enuresis is most commonly classified as a mental health disorder. Only nocturnal enuresis will be addressed in this report.

Primary nocturnal enuresis occurs in approximately 15–20% of 4-year-olds, with a spontaneous cure rate of approximately 15% annually [1]. Epidemiological studies report a prevalence of 1–2% in 18-year-olds.

Enuresis poses enormous obstacles to the successful completion of training for the recruit. These obstacles include, but are not limited to, embarrassment, destruction of unit cohesiveness and morale, and hygiene problems when living and training in close quarters. For these reasons, any history of enuresis or incontinence of urine after age 12 is disqualifying for military service.

Methods

All EPTS discharges for enuresis of nonurologic origin (ICD9 code 307.6) reported to MEPCOM among recruits from January 1997 to December 2000 were reviewed. A total of 327 EPTS discharges for enuresis occurred during the 4-year study.

Results

The Navy was over-represented, with 199 cases (60.8%) compared with 72 (22.0%) from the Army, 52 (15.9%) from the Marines, three (0.9%) from the Coast Guard, and one from the Air Force.

Enuresis was listed as primary reason for discharge in 308 of 327 cases (94.2%) and secondary diagnosis in 19 cases. In 15 of these 19 cases (79%), the primary diagnosis was another mental health disorder (Table 6.9).

TABLE 6.9. PRIMARY DIAGNOSES FOR RECORDS WITH SECONDARY DIAGNOSIS OF ENURESES IN 1997–2000

Primary diagnosis	ICD9 code	No.	%
Neurotic disorder, unspecified	300	8	2.4
Personality disorder, unspecified	301	1	0.3
Alcohol dependence syndrome	303	2	0.6
Drug dependence	304	1	0.3
Disturbance of emotions specific to childhood and adolescence	313	3	0.9
Inguinal hernia	550	1	0.3
Anal fissure and fistula	565	1	0.3
Other disorder of urethra and urinary tract	599	2	0.6

The number of EPTS discharges for enuresis varies widely by year, with more than three times more discharges in 1998 (134) than in 2000 (40). Numbers of accessions were not significantly different between these years, suggesting that under-reporting may be a serious problem in this dataset.

Crude rates of EPTS discharge for this condition are 6.5 per 10,000 accessions per year. Demographic characteristics of enuretics in the recruit population closely resembled those of the general recruit population: they are predominately young, white, and male (Table 6.10).

TABLE 6.10. DEMOGRAPHICS OF RECRUITS RECEIVING EPTS DISCHARGES FOR ENURESIS IN 1997–2000 COMPARED WITH ALL ACCESSIONS IN 1997–1999*

Characteristic	EPTS cases (n = 327)	% enuresis EPTS discharges	% all accessions (n = 525,609)
Age (years)			
17–20	176	83.4	70.0
21–25	29	13.7	24.4
26–30	4	1.9	4.5
>30	2	0.9	1.1
Missing§	113		
Gender			
Male	188	88.8	81.9
Female	36	11.2	18.2
Missing§	103		
Race			
White	153	72.5	69.5
Black	39	18.5	19.1
Other	19	9.0	11.4
Missing§	113		
Branch			
Air Force	1	0.3	19.6
Army	72	22.0	34.9
Marines	52	15.9	19.5
Navy	199	60.8	26.0
Coast Guard	3	0.9	†

* 2000 accession data gain file unavailable from DMDC at time of study.

† Coast Guard accessions unavailable from DMDC gain file.

§ Condition for EPTS discharge indicated but specifics (e.g., age, gender, race) not recorded.

For the 327 EPTS discharges during the 4 years data were collected, 250 cases (76.5%) were attributed to failure of the applicant to reveal preexisting enuretic condition before accession.

Of the 211 EPTS discharges with available medical records, empiric pharmacologic therapy with oxybutynin was attempted and documented in 21 cases (20 Army, 1 Marines) at four basic training sites (Fort Leonard Wood, Fort Sill, Fort Knox, Parris Island). It is unknown if others were successfully treated.

Three of the total 327 were hospitalized at some point before EPTS separation. Enuresis was not listed among any of the discharge diagnoses. Only two hospitalizations mentioned enuresis among the entire recruit population from 1997 through 1999. In both cases, enuresis was the secondary diagnosis to a primary psychiatric diagnosis. Neither of these recruits received an EPTS separation for enuresis. No waivers were granted to any recruit receiving an EPTS discharge for enuresis.

Discussion

Enuresis affects about 1–2% of 18-year-olds, but in this case series <0.1% of all new recruits were discharged with the condition. Potential applicants with significant enuresis most likely self-select out of military service. Those who enter may believe they have

outgrown the condition or have a minor problem that will not interfere with performance. Perhaps these individuals relapse under the stress of basic training.

An average of 82 EPTS discharges for enuresis occur every year across all services. The Navy has the largest percentage of these discharges, which may be due to the Navy's better detection of recruits with enuresis, more accurate coding of the condition at discharge (EPTS vs erroneous enlistment), or better compliance with reporting discharges to MEPCOM.

Although 21 recruits separated despite empiric therapy, no data are available on those for whom therapy succeeded. This limitation makes it difficult to determine the true burden of disease.

Acknowledgments

AMSARA thanks 2LT Steven J. Gaydos.

References

1. Cendron M. Primary nocturnal enuresis: current concepts. *J Am Family Physician* 1999; 59 (5): 1205-14, 1219-20.

CASE SERIES REVIEW OF RECRUITS DISCHARGED FOR VARICOCELE IN 1997–2000

Background

The prevalence of varicoceles varies from 9% to 25.8% in those aged 10 to 25 years. This condition has been associated with decreased fertility, decreased testicular volume, painful scrotum, and intraabdominal cancers.

Palpable unilateral varicoceles occur on the left side in about 90% of cases; approximately 10% of cases have bilateral varicoceles. Unilateral right varicoceles are extremely rare and are nearly always secondary to neoplastic or retroperitoneal disease.

DoD Directive 6130.3 disqualifies all applicants with symptomatic left varicoceles or any right varicocele (classification E1.13.9). Applicants with asymptomatic left varicoceles may enter service.

Varicoceles in adolescents are usually asymptomatic, and therefore diagnosis is typically made at a routine physical examination. This unawareness was confirmed in a study of school-age males and college students where 94% and 78%, respectively, were unaware of their clinically evident varicoceles [1]. Occasionally a patient will present for evaluation of a scrotal mass or testicular discomfort, such as heaviness or dull ache after standing all day. Because a testicular exam is part of the MEPS physical, it is expected that all clinically significant varicoceles would be discovered then.

Methods

A descriptive study was conducted of all EPTS discharges for varicoceles (ICD9 code 456.4) reported to MEPCOM in 1997–2000. Because obesity has been associated with varicose veins of the legs, it was postulated that obesity would lead to higher intraabdominal pressure, increasing venous pressures, and transmission to the testicular veins. Therefore body mass index was considered a potential risk factor.

Results

A total of 87 recruits received an EPTS discharge for varicocele in 1997–2000: 77 (89%) of the varicoceles were on the left, three (3%) were bilateral, two (2%) were on the right, and five (6%) were unknown. The percent by side in this study is similar to the percent by side in other studies (90% left, 10% bilateral). Eighty (92%) recruits had a primary diagnosis of varicocele, and the remaining seven had varicocele as the secondary diagnosis with another primary diagnosis (testalgia, hydrocele, spermatocele, hematuria, asthma, and inguinal hernia). Although this study examined all components of the military services (active duty, reserve, and National Guard), only active duty personnel had EPTS discharges for varicocele.

Characteristics of EPTS cases compared with the general accession population are presented in Table 6.11. Among those receiving an EPTS discharge for varicoceles, 75 (86%) were white, seven (8%) were black, and five (6%) were "other." When compared with the racial distribution of those accessed, whites were 2.75 times (95% CI 1.42, 5.32)

more likely than blacks to be discharged with varicoceles. Discharged recruits had a similar age distribution to the general accession population.

TABLE 6.11. DEMOGRAPHICS OF RECRUITS RECEIVING EPTS DISCHARGES FOR VARICOCELE IN 1997–2000 COMPARED WITH ALL ACCESSIONS IN 1998–2000

Characteristic	Varicocele EPTS cases (n = 87)*	% varicocele EPTS (excluding missing)	All accessions (n = 525,609)*	% all accessions (excluding missing)
Age				
17–20 yr	53	60.9	365,888	69.7
21–24 yr	30	34.5	116,390	22.2
>24 yr	4	8.1	42,280	8.1
Missing	0		1,051	
Race				
White	75	86.2	360,658	69.5
Black	7	8.0	102,925	19.8
Other	5	5.8	55,753	10.7
Missing			3,167	
Service				
Air Force	16	46.0	98,973	18.5
Army	40	18.4	194,103	38.0
Marines	21	24.1	93,784	18.2
Navy	10	11.5	138,749	25.3
Coast Guard	1			
Body mass index				
17–19	9	10.3	42,870	10.9
20–25	58	66.7	198,758	51.1
26–29	18	20.7	124,711	31.9
30+	1	1.1	23,383	6.1
Missing	1			

* Coast Guard excluded because accession data unavailable from DMDC gain file.

Body mass index of those receiving an EPTS discharge for varicocele was similar to the distribution of body mass index among all male accessions. Among all EPTS discharges for varicocele, only two (2%) received waivers for the condition.

Table 6.12 shows the rate of varicocele EPTS discharges in total male accessions by service. Varicocele was an infrequent EPTS discharge in male accessions, with an overall rate of 11.2 per 100,000. The Army had the highest varicocele discharge rate at 14.4 per 100,000 compared with the Navy, which had the lowest (relative risk for Army discharge compared with Navy 2.21, 95% CI 1.04, 4.69).

Hospitalizations for varicoceles were also examined. A total of 40 hospitalizations with a diagnosis of varicoceles within the first 6 months of duty was reported from 1995–1997. Of these 40, 31(78%) had a primary diagnosis of varicocele, 4(10%) had varicocele as a secondary diagnosis, 2(5%) as tertiary diagnosis, 2(5%) as quaternary diagnosis, and 1(3%) as fifth diagnosis. It is interesting to note that only 2 of the varicocele EPTS discharge were hospitalized, neither for a diagnosis of varicocele.

TABLE 6.12. RATE OF VARICOCELE EPTS DISCHARGES PER 100,000 IN 1998–2000

	All*	Army	Navy	Air Force	Marines
Varicocele EPTS 19	59	28	9	10	12
Male accessions	525,609	194,103	138,749	98,973	93,784
EPTS rate/100,000 accessions	11.2	14.4	6.49	10.1	12.8

*Coast Guard excluded because no accession data from DMDC.

Discussion

Varicoceles were an uncommon EPTS discharge over the 4 years studied. Recruits may have concealed symptoms at MEPS, but small undetectable varicoceles might have enlarged and become symptomatic in response to the stress of rigorous physical training. From the hospitalization data, it appears that as many as 40 recruits may have had their varicocele repaired in the first 6 months of service and remained on active duty. Factors that influence whether a repair is offered could not be examined in this review.

The high prevalence of this condition among males and the expectation that many asymptomatic varicoceles might become symptomatic during training preclude further reduction in the EPTS rate.

Acknowledgments

AMSARA thanks 2LT Luis Javier Martinez.

References

1. Steeno O, Knops J, DeClark L, Adimoeija A, van de Voorde H. Prevention of fertility disorders by detection and treatment of varicocele at school and college age. *Andrologia* 1976;8:47–53.

7. FUTURE DELIVERABLES

Early medical attrition is a complicated issue involving a mix of medical and nonmedical issues. AMSARA has focused on the most common conditions contributing to attrition: asthma, mental health conditions, and orthopedic problems.

Improved assays or screening tests must be developed to detect preexisting conditions, and such tests require human research. Because AMSARA is funded out of operational money, this goal is challenging. Recruit medicine must be identified as a critical area of research with dedicated research money, and this goal will continue to be actively pursued in 2002. Once targeted, recruit medicine (including accession standards) can be improved with various collaborative efforts among institutes, services, and civilian partners to improve accession standards and training and to maintain health of the active duty force.

The problem of applicants concealing medical conditions persists, resulting in an unacceptable number of EPTS discharges. AMSARA is searching for the means to address applicant concealment through better screening tests. A collaborative research and development protocol exists between AMSARA and the Swedish company Aerocrine to field-test their device NIOX. Already approved by the Food and Drug Administration, NIOX measures exhaled nitric oxide, an inflammatory marker correlated with asthma. Field-testing of this device is underway at Great Lakes Naval Training Center. Future plans are to try NIOX at a MEPS.

Musculoskeletal injuries cause much premature medical attrition. Many training sites have developed programs to address specific aspects of the attrition problem. This year AMSARA continued collaboration with Fort Jackson to evaluate the Physical Training Rehabilitation Program there. The 2002 Annual Report will include a study on its efficacy in reducing attrition from participants in 1999 and 2000. The program has been expanded to all five Army Initial Entry Training sites. AMSARA welcomes future collaboration with other basic training sites to fully evaluate the effectiveness of their programs to reduce attrition.

Project REMAIN

Project REMAIN is the first study to systematically examine the impact of a proposed change in an accession standard, specifically allowing mild asthmatics to enter the military (see Section 2).

The study began to enroll cases on 26 July 2000. Interim results after 2 years of enrollment will be presented in the 2002 AMSARA Annual Report. Final results after at least 1 year of follow-up will be presented in the 2003 report.

EPTS Asthma Study at Fort Jackson

AMSARA began collecting additional information on those receiving an EPTS discharge for asthma in January 2001 at Fort Jackson, South Carolina (see Section 2). Primary objectives are 1) to better understand how the recruit came on active duty with asthma (e.g., condition was waived, concealed, or unknown) and 2) to determine whether asthma was affecting his or her performance. The goal is to enroll approximately 100 asthmatic and 300 nonasthmatic EPTS discharges. Low asthma discharge rates at Fort Jackson have prompted the addition of Fort Knox as a study site. Fort Knox has the highest Army basic training discharge rate for asthma. Current plans are to expand the study to Lackland Air Force Base in 2002.

Mental Health Studies

AMSARA continued its relationship with the Division of Neuropsychiatry at WRAIR during 2001. Several projects are being developed jointly to better understand mental health disorders among recruits. A future collaboration is planned to develop a mental health module to be included in the EPTS questionnaire study used at Fort Jackson and Fort Knox.

Mental Health Hospitalization Study

AMSARA's study of early hospitalization on active duty (2000 AMSARA Annual Report, p. 23) showed that attrition after hospitalization for mental health conditions was high. To better understand the attrition pattern related to mental health conditions during the first 6 months of active duty, a more in-depth study of the effect of early hospitalization is planned. The new study will compare all admissions for mental health conditions with all other causes. Specific categories to be studied are mood disorders, anxiety disorders, psychotic disorders, alcohol/substance abuse disorders, adjustment disorders, somatoform/dissociative disorders, and personality disorders. Military retention after each type of hospitalization will be described, and any factors that may correlate with survival will be determined.

Psychiatric Screen for Military Applicants

A Small Business Initiative Research proposal to develop a psychiatric screen for military applicants was awarded to AMSARA by DoD in December 2001. Two contractors are working in phase I to develop a prototype screen. Phase II will begin in 2002 and will include validation testing of the screen and field-testing at a MEPS.

Recruit Assessment Program

CHPPM has been tasked to implement the Recruit Assessment Program (RAP) in the Army. This new program, which has been implemented in other services, is to establish baseline health data to better monitor health-related and occupational problems throughout servicemembers' careers. RAP will provide a valuable source of data for assessing risk factors for health problems by identifying potential predictors such as health risk behaviors, emotional as well as physical functioning, and childhood vulnerabilities.

In 2001 AMSARA participated with CHPPM and the Division of Neuropsychiatry at WRAIR to plan stages of RAP. Although RAP is not being implemented as a research initiative by CHPPM, a research protocol will be submitted to pilot RAP in 2002 at Fort Jackson. RAP is expected to be utilized as a health surveillance instrument to address important predictors of health and occupational problems among new recruits.

Quadrennial Timetable for Draft of DoD Instruction 6130.4

AMSWG has adopted a 4-year timetable for the next revision of DoD Directive 6130.3 and DoD Instruction 6130.4 (see Section 6). AMSWG anticipates that all 19 specialties will be reviewed from January 2001 to December 2003 with final approval for changes in December 2004.

Specialty reviews planned for 2002 include ear, nose, and throat; orthopedics; allergy; dermatology; neurology; cardiology; rheumatology; and internal medicine. A survival analysis of recruits with a waiver for hearing loss is in progress. Information provided will vary by condition and may include counts of disqualifications, waivers applied and granted, condition-related hospitalizations, and medical and administrative discharges.

Appendix : Accession Medical Standards

On 14 December 2000, the DoD published an update of its "Criteria and Procedure Requirements for Physical Standards for Appointment, Enlistment, or Induction in the Armed Forces." This document is published as DoD Instruction 6130.4, and the full text can be found at <http://www.dtic.mil/whs/directives>.

DoD Instruction 6130.4 "establishes physical standards, which, if not met, are grounds for rejection for military service." DoD Directive 6130.3, published 15 December 2000, requires the implementation of DoD Instruction 6130.4 by the Assistant Secretary of Defense for Health Affairs. The standards apply to all applicants for enlistment in the Armed Forces, reserves, and National Guard, as well as Armed Forces special officer procurement programs such as the military academies and ROTC programs. The standards also apply to enlistees' first 6 months of duty for conditions predating service, cadets and midshipmen retained at the service academies, and ROTC scholarship recipients.

In addition to listing each medical condition, DoD Instruction 6130.4 provides diagnosis codes that approximately correspond to ICD9 codes. Policy attached to DoD Instruction 6130.4 directs the use of these codes "in all records that pertain to a medical condition that results in a personnel action such as separation or medical waiver."

Through these detailed coding schemes AMSARA identifies subjects for many of its studies, such as enlistees entering service with a waiver for history of surgical knee repair or enlistees being discharged for pre-existing asthma. These codes are referred to in this report as the "DoD Instruction codes" to distinguish them from the full set of ICD9 codes that are still used by some agencies to categorize certain medical actions.

CHARTER AND SUPPORTING DOCUMENTS



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

DEC 06 1995

MEMORANDUM FOR SURGEON GENERAL OF THE ARMY

SUBJECT: Military Medical Standards Analysis and Evaluation Data Set

The personnel community has asked OASD/HA to develop a fact based accessions policy to minimize medical attrition, quantitate risk in medical waivers, and to defend accession decisions when challenged.

The offices of Clinical Services and Military Personnel Policy have worked closely with epidemiologists at Walter Reed Army Institute of Research on the concept of a Military Medical Standard Analysis and Evaluation Data Set (MMSABDS) to apply quantitative analysis to a longitudinal data base.

The Army Center for Health Promotion and Preventive Medicine (CHPPM) maintains a data base of personnel, hospitalization, deployment and separation information for all Services. I would like WRAIR, in coordination with CHPPM, to serve as consultants to the Accession Medical Standard Steering Committee, modify and maintain the data base, and coordinate field research to answer specific questions germane to accession policy.

Therefore, I request that, by the end of December 1995, a proposal be submitted through you from WRAIR, outlining the consultant role and modifications needed to the data base. This should include funding requirements.

Edward D. Matteo/bn
Stephen C. Joseph, M.D., M.P.H.

cc:
Commander WRAIR

HA Control #: NONE
Due Date: NONE

February 28, 1995

ASSISTANT SECRETARY OF DEFENSE
(HEALTH AFFAIRS)
EXECUTIVE SUMMARY/COVER BRIEF

MEMORANDUM FOR THE ASSISTANT SECRETARY OF DEFENSE
(HEALTH AFFAIRS)

THROUGH: *Jm* Dr. Sue Bailey, DASD (CS)
FROM: Action Officer, Colonel Ed Miller
SUBJECT: Accession Medical Standards Analysis and Research
Activity (AMSARA)

PURPOSE: SIGNATURE--on request that the Assistant Surgeon
General of the Army (Research and Development)
establish an Accession Medical Standards Analysis
and Research Activity (AMSARA).

DISCUSSION:

The Accessions Medical Standards Working Group
which met over the summer sponsored through MFIM
funding completed a functional economic analysis
of the medical accessions examination process.
One of the critical recommendations made by the
Group was to establish a research activity to
provide the Medical Accessions Standards Council
(also recommended) with an evidence-based analysis
of DoD accessions medical standards. The
memorandum tasks the Army with the responsibility
of establishing the activity resourced under the
Defense Health Program. This has already been
staffed with the Assistant Surgeon General of the
Army (Research and Development)

RECOMMENDATION:

Sign tasking memorandum to Army Surgeon General.

COORDINATION:

✓ Mr. Conte, PDUSD(P&R) _____
✓ Mr. Maddy, HB&P: See attached memo
✓ Mr. Richards, EO: _____
Dr. Martin, PDASD: _____

DEPARTMENT OF DEFENSE
ACCESSION MEDICAL STANDARDS
STEERING COMMITTEE

CHARTER

I. ESTABLISHMENT, PURPOSE AND SCOPE

A. ESTABLISHMENT

The Under Secretary of Defense (Personnel and Readiness) establishes a Department of Defense Accession Medical Standards Steering Committee (hereafter referred to as the "Committee".) The Committee shall operate under the joint guidance of the Assistant Secretaries of Defense (Force Management Policy and Health Affairs [FMP & HA].)

B. PURPOSE

The Committee's main objective is to ensure the appropriate use of military members with regard to medical/physical characteristics, assuring a cost-efficient force of healthy members in military service capable of completing initial training and maintaining worldwide deployability. The primary purposes of the Committee are: (1) integrating the medical and personnel communities in providing policy guidance and establishing standards for accession medical/physical requirements, and (2) establishing accession medical standards and policy based on evidence-based information provided by analysis and research.

C. SCOPE OF ACTIVITY

1. The Committee's responsibility involves:

- a. Providing policy oversight and guidance to the accession medical/physical standards setting process.
- b. Directing research and studies necessary to produce evidenced-based accession standards making the best use of resources.
- c. Ensuring medical and personnel coordination when formulating accession policy changes.
- d. Overseeing the common application of the accession medical standards as outlined in DoD Directive 6130.3, "Physical Standards for Appointment, Enlistment, and Induction."

e. Interfacing with other relevant Department of Defense and Department of Transportation organizations.

f. Recommending promulgation of new DoD directives as well as revisions to existing directives.

g. Recommending legislative proposals concerning accession medical/physical processing.

h. Reviewing, analyzing, formulating and implementing policy concerning the accession physical examination.

i. Issuing policy letters or memoranda providing interpretation of provisions of DoD directives.

j. Resolving conflicts of application of accession medical/physical standards and policies among the Military Services and other authorized agents.

k. Maintaining records and minutes of Committee meetings.

II. ORGANIZATION

A. The Committee will be co-chaired by the Deputy Assistant Secretary of Defense (Military Personnel Policy) and the Deputy Assistant Secretary of Defense (Clinical Services). This will facilitate tasking the Deputy Chiefs of Staff for Personnel and the Surgeons General to assign staffers to relevant working groups, and to ensure DCS/Personnel and Surgeon General personal involvement with the various issues. The Committee will convene semiannually, at a minimum, and at the discretion of the Chairpersons.

B. Committee members are appointed by the Under Secretary of Defense (Personnel and Readiness) and provide ongoing liaison with their respective organizations concerning matters of medical/physical accession policy.

C. The Committee shall be composed of representatives from the following:

Office of the Assistant Secretary of Defense (Force Management Policy)

Office of the Assistant Secretary of Defense (Health Affairs)

Office of the Assistant Secretary of Defense (Reserve Affairs)

Office of Service Surgeons General

Office of Service Deputy Chiefs of Staff for Personnel, and Chief of Personnel and Training, HQ U.S. Coast Guard.

D. Representatives from the Office of the Assistant Secretary of Defense (Force Management Policy) and the Office of the Assistant Secretary of Defense (Health Affairs) shall serve as executive secretaries for the Committee, and maintain a working group, composed of representatives from each of the offices mentioned above, to receive and review issues pertinent to accession policy.

E. The Commander, U.S. Military Entrance Processing Command, and the Director, DoD Medical Examination Review Board shall serve as advisors to the Committee.

F. The Committee may invite consultants (i.e., training, recruiting, epidemiology) at the discretion of the Chairpersons.

Approved: JAN 16 1996
Date

A handwritten signature in black ink, appearing to read 'EDWIN DORN', with a long horizontal line extending to the right.

EDWIN DORN

Acronyms

AD	active duty	FEV	forced expiratory volume
AFB	Air Force base	GED	general educational development
AFQT	armed forces qualifying test	HS	high school
AMSARA	Accession Medical Standards Analysis and Research Activity	HSIL	high-grade squamous intraepithelial lesion
AMSWG	Accession Medical Standards Working Group	ICC	invasive cervical carcinoma
ASCUS	atypical squamous cells of undetermined significance	ICD9	international classification of diseases, 9 th revision
CHPPM	Center for Health Promotion and Preventive Medicine	LSIL	low-grade squamous intraepithelial lesion
CI	confidence interval	MEPCOM	military entrance processing command
CIN	cervical intraepithelial neoplasia	MEPS	military entrance processing station
CSB	College Scholarship Branch	NA	not applicable
CY	calendar year	PASBA	Patient Administration Systems and Biostatistical Activities
df	degrees of freedom	RAP	Recruit Assessment Program
DMDC	Defense Manpower Data Center	ROTC	Reserve Officer Training Corp
DMSS	Defense Medical Surveillance System	RR	relative risk
DoD	Department of Defense	SSN	social security number
DoDMERB	DoD Medical Examination Review Board	TMD	temporomandibular disorder
DQ	disqualification	WRAIR	Walter Reed Army Institute of Research
EPTS	existed prior to service		